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**COLLABORATIVE CONSERVATION OF TAIMEN (*Hucho taimen*) THROUGH
EDUCATION AND AWARENESS *KHOVSGOL AIMAG* MONGOLIA**

By

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Professional Paper

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Resource Conservation, International Conservation and Development

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COLLABORATIVE CONSERVATION OF TAIMEN THROUGH
EDUCATION AND AWARENESS *KHOVSGOL AIMAG* MONGOLIA

Chair: Dr. Keith Bosak
Dr. Steve Seibert
Dr. Matt Mckinney

ABSTRACT:

Siberian taimen (*Hucho taimen*) populations in northern Mongolia (the state of *Khovsgol aimag*) are threatened by illegal poaching, habitat loss, mining and recreational fishing. Taimen are the world's largest salmonid, historically reaching lengths of 6.5 ft. and weighing as much as 200 lbs. This unique species of fish is incredibly slow-growing, long-lived (up to 40 years) and late to reach sexual maturity (5-7 years). These characteristics -- coupled with overuse and habitat loss -- have resulted in a drastic species decline throughout its native range. In Mongolia alone, the taimen's historical range has been reduced by nearly twenty per cent (Hogan, et al., IUCN Red Listing 2012). Taimen have been listed as endangered under the Mongolian, Russian and Chinese Red Lists. The intent of this project is to address taimen conservation through an educational campaign targeted at foreign and domestic anglers. The Spirit of the River (SOR) project addresses long-term protection of this rare and threatened fish. An education and awareness campaign was implemented in *Murun* (the provincial capital of *Khovsgol aimag*), the *Murun* regional airport and the *Chinggis Khan* International airport in the Mongolian capital of *Ulaanbaatar*. The SOR campaign targets foreign and domestic anglers who come to *Khovsgol aimag* to fish for taimen.

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Introduction:

Taimen (*Hucho taimen*) populations in *Khovsgol aimag* (state) in northern Mongolia are threatened by illegal poaching, habitat loss, mining and recreational fishing. Taimen are the world's largest salmonid, historically reaching lengths of 6.5 ft. and weighing as much as 200 lbs. This unique fish is incredibly slow growing, long lived (up to 40 years) and late to reach sexual maturity (5-7 years). Biological characteristics coupled with overuse and habitat loss

Figure 1: A recreational caught taimen on the *Delger Murun* River, Mongolia (Photo: Cody Rettke)



have resulted in a drastic species decline throughout their native habitats. In Mongolia alone taimen have lost 19.1% of their native range and distribution (Hogan et al., IUCN Red Listing 2012). This project addresses taimen conservation through an educational campaign targeted at foreign and domestic anglers. The Spirit of the River (SOR) project addresses the long term protection of this rare and endangered fish. An education and awareness campaign was implemented in *Murun* the provincial capital of *Khovsgol aimag*, the *Murun* regional airport, and the *Chinggis Khan* International airport in the Mongolian capital of *Ulaanbaatar*. The SOR campaign targets foreign and domestic anglers that come to Mongolia and *Khovsgol aimag* to fish for taimen. Additionally a mark recapture tagging program was implemented in June of 2011 targeting taimen in the *Delger Murun* River in collaboration with the National University of Mongolia.

There is no question regarding an increase in the number of anglers and there is also no question of the decrease in taimen distribution and populations. However, the lack of enforcement and scientific research in Mongolia leaves many specific information gaps such as:

the number of foreign and domestic anglers, the direct negative effects of angling pressure and taimen's biological responses to angling. Despite these unknown statistics, declining taimen populations remain a certainty. In 2012, Siberian taimen were for the first time listed on the IUCN Red List of Threatened Species. It has been determined that a 50% loss in overall species abundance occurred over the past three generations in Mongolia (Hogan et al., IUCN Red Listing 2012).

As mentioned this decline has resulted from a variety of reasons. As outfitters in Mongolia we have the ability to control the effects of international and domestic anglers on taimen populations. Through personal observations and those of other sport fishing outfitters since the late 1990's, the difficulty in maintaining viable taimen populations and insuring their long-term survival has become clear, even without scientific documentation. Every season we actively witness anglers and outfitters breaking taimen fishing regulations; it is evident that many infractions are directly tied to a lack of information and education of these regulations. The first-hand knowledge acquired through direct outfitter experience with taimen has been so critical that the Government of Mongolia has implemented management decisions incorporating this information. What this suggests is that the Government of Mongolia currently lacks the capacity and scientific knowledge to make management decisions from information that they have collected.

The project that I have been working on is a result of these direct observations. Every year we see more and more anglers flying in and out of the *Murun* airport, and we see and hear about an increase of anglers on the rivers of *Khovsgol aimag*. As a result of these observations and the previous lack of enforcement, it was determined that an educational outreach program would best address the impacts associated with an influx of anglers both domestic and foreign.

As a collaborative group we feel that we have the ability to understand what the problems are and address those concerns within the framework selected.

I chose to implement this project due to its pragmatic qualities; there was an opportunity to address a problem that we could witness with our own eyes. I began guiding taimen anglers for Fish Mongolia in 2007, I have returned to guide every year since and this has provided me with intimate first-hand knowledge of the issues faced. I have no doubt that interviewing foreign and domestic anglers would have provided information beneficial for taimen conservation. I did not feel that this would accomplish the goal of providing an avenue for information to be shared with groups that have direct negative effects on taimen population numbers. As a result of the lack of enforcement by the Government of Mongolia, the difficulty of knowing when and where anglers can be targeted, and the often combative nature of foreign and domestic anglers when confronted in the field led me to choose the design used for this project. Additionally the opportunity for an increase in collaboration among stakeholders played a major role.

To understand the approach taken to complete this project and the methods necessitated, one must be aware of the working conditions in Mongolia. Mongolia is a large, essentially undeveloped country; travel is difficult and access to remote areas where healthy taimen populations are found can be extremely challenging. One may think that the difficulty associated with access to taimen populations would act as a deterrent for legal and illegal anglers; that is simply not the case. It does however render enforcement extremely difficult. To combat the lack of enforcement three foreign outfitters operating in Mongolia, Fish Mongolia, Sweetwater Travel and Mongolia River Outfitters have invested time and resources into sustainable catch and release taimen fisheries and implemented comprehensive place-based conservation projects.

These projects focus on local collaborative conservation; through personal observations and meetings with participants my determination is that they have been highly successful.

In the initial stages of taimen conservation Sweetwater Travel and Mongolia River Outfitters led the charge. Although approaches differed, both companies developed highly successful conservation models based upon their relationships with large donor agencies and clientele. As a result they have succeeded in raising money and protecting taimen populations and their habitats in an increasingly sustained fashion. Essentially this has allowed them to look inwardly knowing that they have the resources to protect the incredibly special watersheds where their businesses operate. By examining lessons learned from previous conservation practices I proposed a project that amplifies the successful strategies resulting in a greater positive impact for national taimen conservation. By providing an opportunity for stakeholders to work collaboratively on a larger scale our goal was to accomplish a conservation project that benefits all taimen fisheries in Mongolia and at relatively low costs because of the ability to pool resources.

The objective of this paper is to explore and evaluate this collaborative conservation effort with a specific focus on the educational campaign. In order to achieve this, I will first introduce the research setting. Mongolia is a unique country and many of the characteristics that have defined this country play a direct role in the issues this project addresses. Next, I speak to the issues and threats that taimen face in Mongolia, resulting in the conservation projects that have been implemented as a response. The work that has been adopted and applied is a response to taimen population threats. I then provide an explanation of the reasons why the previous work was designed with a place based focus and the methods that were used to accomplish the SOR project. An analysis of the project design and success is provided followed by opportunities to

not only ensure the project continues but has the resources and capacity to grow and expand. This paper concludes with a discussion of some of the lessons that I learned while working in such a diverse and at times challenging region, my hope being that I can provide information to others that are attempting work such as this.

Research Setting

This project focuses on *Khovsgol aimag* in northern Mongolia (APPENDIX A). Mongolia is the second largest landlocked country and is located between two of the world's superpowers Russia and China. Mongolia is uniquely situated at the convergence of the Gobi Desert, Central Asian Steppe, and Siberian Forest biomes. Because Mongolia's national borders enclose all three of these major Central Asian ecological zones, Mongolia has what may be the highest biodiversity of any of the Central Asian nations (Farrington, 2005). Mongolia is home to charismatic mega fauna most notably the Argali sheep (*Ovis amman*), wild Bactrian camels (*Camelus bactrinus ferus*), Saiga antelope (*Saiga tatarica*), and the largest freshwaters salmonid the taimen (Reading et al. 2006).

Khovsgol aimag consists of 23 *soums* (counties) and the provincial capital of *Murun*. *Khovsgol aimag* is one of Mongolia's most diverse and beautiful landscapes encompassing over 38,000 square miles of rugged mountains, deep lakes and free flowing rivers. It is often referred to as the Switzerland of Asia. The robust levels of biological diversity can be attributed to the relatively high amount of precipitation, topographic and climatic variability and the remoteness along its northern border with the Russian Federation. *Khovsgol aimag* is home to the largest concentration of rivers containing productive taimen fisheries. As a result of this concentration, *Khovsgol aimag* has become a destination for international anglers, Mongolian anglers from the capital of *Ulaanbaatar*, and local anglers from surrounding population centers. The increased

number of anglers has resulted in a steep decline in taimen populations as a result of illegal poaching for international and domestic markets, improper handling techniques and local consumption (Ocock et al. 2006).

Murun, the administrative capital of *Khovsgol aimag* is a city of 36,000 residents located on the *Delger Murun River*. *Murun* is known as the “gateway to *Khovsgol*” because the vast majority of tourists visiting *Khovsgol aimag* pass through this town and airport. During the peak angling season, August 15- October 15, three flights a day from *Ulaanbaatar* arrive at the *Murun* airport. This provides an excellent opportunity to interact with the largest number of visiting anglers. Due to the fact that this is the only commercial airstrip in the *aimag* it ensures that most anglers have to travel through this location.

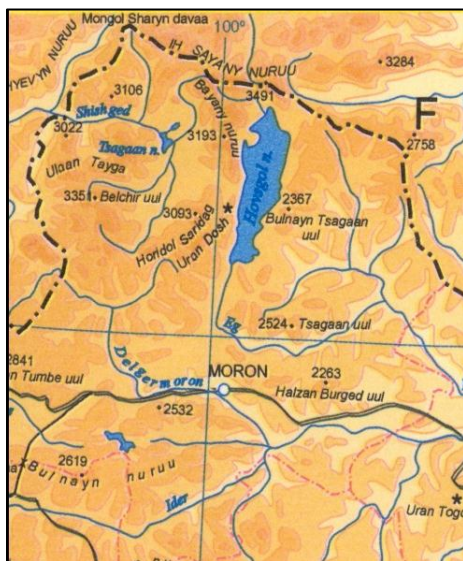


Figure 2: Delger Murun River with Lake Khovsgol and the town of Murun.

Murun is home to a large number of local fishermen, many of whom are engaged in illegal fishing practices, poaching for export to *Ulaanbaatar* as well as local consumption for the residents of *Murun*. Through personal observations it has been determined that poaching is the highest concern among these individuals. During the year illegally harvested taimen are sold to buyers in the *Murun* market.

The *Delger Murun* flows in its entirety through *Khovsgol aimag*. Together with the *Ider* and *Chuluut* Rivers it is one of the sources of the *Selenga* River. The *Selenga* River system is the largest river in Mongolia, and is the main source of water and sediments for the Lake Baikal World Natural Heritage Site. The source of the *Delger Murun* is in the *Ulaan Taiga* mountain range close to the

Russian border; the *Delger* flows for 277 miles and drains a basin comprised of 10,286 sq. miles of remote isolated boreal forest. Fish Mongolia has operated on the *Delger Murun* since 2003 and conducts scientific research on an 80 mile section between *Arbulag* and *Bayaan Ulaan soums*. Unlicensed fishing pressure and difficult working environments in the northern reaches of *Bayanzurkh soum* has led to a decrease in the area of operation for Fish Mongolia. At one point Fish Mongolia operated trips on nearly 150 miles of the *Delger Murun*.

The *Delger Murun* is characterized by steep canyon walls, breathtaking scenery, and healthy fish populations. Populations include taimen (*Hucho taimen*), lenok (*Brachymystax lenok*) and arctic grayling (*Thymallus arcticus*). As a result of its natural isolation due to the challenging topographic environment fish numbers have stayed resilient in many of the sections that are unreachable by vehicle.

Background and Project Justification:

Mongolia has what is arguably the world's longest tradition of environmental protection, dating back to *Chinggis Khan's* 13th century legal code, the "*Ikh Zasag*." This code of law forbade, among other things, the pollution of water and the destruction of soil, and the protection of both resources being critical in the pastoral-centric steppe empire (Jargalyn 2001; Khamaganova 2001). At a time when many countries are actively pursuing conservation methods to repair past environmental mistakes, Mongolia has seemingly lost touch with its historical conservation mentality (Pratt et al., 2003). As mentioned Mongolia has an incredibly high level of endemic species and biodiversity. Sadly this high level of biodiversity is threatened.

Taimen have declined in abundance throughout their native range in the large rivers of the Volga/Caspian, Arctic, and Pacific drainages of northern Eurasia (Jensen et al. 2009) and are

listed as endangered on the Mongolian, Russian, and Chinese red lists (Ocock et al. 2006). Healthy populations do exist in the remote areas of northern Mongolia (Jensen et al. 2009) but even these populations are beginning to feel the threat of human disturbances. Although laws are in place to protect taimen throughout Mongolia, it is widely known that enforcement is ineffective (Pratt et al., 2003). In this section, I first outline the specific threats to taimen and also show how an educational campaign and collaborative approach to conservation might turn some of those threats into opportunities. This will lead into a discussion of the previous efforts aimed at reducing these threats with a goal of illustrating how a collaborative model might be more effective.

Threats to Taimen

Taimen are charismatic megafauna that face numerous threats to their survival. This keystone species is the top tier predator and direct indicator of riverine ecosystem health and function. A decrease in taimen distribution and overall abundance is a clear and undeniable indicator that ecosystem health is suffering. Addressing the cause of decreased taimen numbers and distribution will not only benefit the survival of taimen as a species but will also increase the environmental health of the entire ecosystem (Balbar, 2009). Threats to taimen are numerous and sadly growing in number and frequency; the following section outlines the most common threats.

Lack of Enforcement

Established in 1989 The Ministry of Nature and Environment (MNE) was created to manage the natural environment within Mongolian. Shortly following its creation the Government of Mongolia took part in a fundamental shift away from the previous socialist regime and enacted internationally supported austerity measures in their bid for privatization.

The subsequent cut back in government budgets left the MNE with little power and funding to enact environmental regulations. In the bid to decentralize the government wildlife management issues were delegated to local governments on the *aimag* level. *Aimag* level governments did not have the budget or training to properly enforce wildlife conservation laws, a problem that still exists today (Rossabi 2005).

Wildlife officers are expected to cover enormous areas with little to no access to transportation and fuel. Furthermore certain wildlife officers are either involved in the wildlife trade or are sympathetic to the industry because of the economic difficulties experienced during this transition period. Socially the position of the rangers is a difficult one, as they are not widely liked, are often suspected of poaching themselves, and cannot work effectively for fear of retribution, or being isolated by the community. If illegal activity is observed it is often resolved immediately on site with a bribe going to the officer, as there is increased corruption at all levels (Pratt et al., 2003). As a result of the lack of enforcement the numbers of rural residents participating in illegal hunting and fishing activities sky rocketed during the 1990s. As rural populations continued to swell with inexperienced often displaced herders, a precipitous drop in wildlife numbers followed.

Another recent issue with enforcement, determined through personal observations and meetings with effected parties, is the blatant disregard of laws and regulations by what has been called the “black land cruiser fishermen”. With the influx of money from mining industry there has been an increase in anglers from *Ulaanbaatar*. These anglers come in brand new 4WD vehicles and many of them act under the belief that the laws and regulations simply do not apply to them. Many of these anglers are high ranking government employees, mining executives, business leaders and other wealthy Mongolians who have benefited enormously from

privatization of the economy. Wildlife officials often feel unable to impose rules and regulations on these individuals.

Recreational and Commercial Angling

The Government of Mongolia must be applauded for the creation of comprehensive laws and regulations for taimen angling. While these laws are not perfect and have at times been created out of misinterpreted information they do provide strong support for the conservation work in which we as outfitters and members of the taimen conservation collaborative community are engaged (Hogan et al., IUCN Red Listing 2012). Many foreign and local anglers either choose to disregard these or are simply uninformed of the laws and regulations. As a foreign outfitter we had no authority to enforce these laws; however, through launching an educational campaign acknowledging taimen conservation, we could attempt to address these issues. This campaign attempts to fill the gap between enforcement and regulation, and providing information to many unaware angling groups. These angling “threat” groups have been classified into three separate categorizations: foreign anglers, Mongolian anglers from *Ulaanbaatar* and local fishermen from *Khovsgol aimag*.

The first group consists of foreign anglers that come to Mongolia to participate in recreational fishing. Sweetwater Travel, Mongolia River Outfitters and Fish Mongolia are the only outfitters that operate fly-fishing exclusive trips for taimen. These companies practice strict catch and release fishing with single barbless hooks and provide all licenses required by the MNET. These trips are expensive, ranging between \$5000.00- \$6500.00 USD per week of fishing, and clientele consist primarily of foreign anglers from around the world. Although prices for these trips are high it is important to note that outfitting in Mongolia is not very profitable. No one is getting rich operating fishing trips in Mongolia for several reasons. As a

result of the harsh climate and desire to limit the number of anglers to preserve the resource, the angling season is six weeks long. Conservation minded outfitters intentionally limit the number of anglers per season to ensure quality trips in the future and to preserve the resource. If short-term profits alone drove these businesses, many more anglers could be accommodated likely resulting in severe resource degradation. A limited number of anglers worldwide choose to fly halfway around the world to fish during the prime season for taimen fishing which incidentally occurs at the same time as other world class fishing destinations such as: salmon and trout in Russia, golden dorado in Bolivia, steelhead in Canada, trout in the Western United States, etc. As a result of global competition, a large percentage of operating costs go into marketing, websites, fly-fishing tradeshow and other promotional costs.

Furthermore, expenses within Mongolia have become extraordinarily expensive; prices for food, fuel, hotels and labor are being driven up as a result of the mining boom. Distances in Mongolia are immense and charter flights and transportation costs are very expensive. All of the equipment that is used is specialized requiring importation into the country on shipping containers. Extended use of this equipment requires continuous replacement, further decreasing profits. Rafts and boats cost thousands of dollars in the United States before they are loaded onto shipping containers, shipped to China and then hauled by railway into *Ulaanbaatar*. A significant amount of local labor is required to operate trips; cooks, drivers, camp staff and local fishing guides are all hired for the season. Foreign guides travel from the United States and South America with flights averaging roughly \$2,000 USD per guide.

Responsible outfitters that follow regulations and provide legal permits to all anglers pay roughly \$400.00 USD per angler for the trip. Booking agents that sell these trips keep 20% of the entire trip cost before the angler even arrives in country. Outfitters spend an enormous

amount of time and financial resources promoting conservation and advocating against hatchery, commercial logging and mining proposals. Passion for taimen conservation is the current motivation among conservation-minded outfitters to continue operating on these rivers while incurring compounded costs. Their hopes of preserving these truly wild and special places keeps many actively involved in taimen conservation.

Numerous foreign and local fishing outfitters that operate within Mongolia do not follow these same guidelines. Their clients are often unlicensed, mishandle or at times intentionally kill taimen, and use illegal fishing tackle such as treble hooks and live bait. As a foreign angler and someone that promotes foreign angling in Mongolia, there is a heightened sense of responsibility to ensure that this target audience understands and is informed of all of the rules and regulations that the Government of Mongolia has created. After foreign anglers have been informed of the threat they pose to this species it will be their responsibility to follow these procedures not only to abide by the law, but also to play a positive role in the preservation of this endangered species. Complying with the law helps foreign anglers show their respect for the rules and regulations of the countries in which they recreate.

Following the collapse of the Soviet Union in 1990, Mongolia has undergone democratization and economic privatization. Tourism has emerged as an important source of foreign currency and offers an economic alternative to activities such as gold mining and heavy industry. The number of private tourist companies offering taimen fishing has increased in recent years, attracting anglers from around the world. The current upsurge of taimen fishing and harvest in Mongolia could lead to population collapse, undermining not only the fishery, but also the long-term ecotourism potential of the fishery (Vander Zanden et. al 2007)

The second group of Mongolian fisherman comes from the capital *Ulaanbaatar*. As infrastructure, accessibility, and incomes improve more and more Mongolian fisherman have been travelling to rural Mongolia in pursuit of taimen. This group also falls under the recreational fishing category; however it is well known, albeit undocumented, that this group participates in a much higher amount of catch and kill fishing practices. There is little cultural tradition of fishing or fish consumption in Mongolia, though Russian and Chinese immigrants living in Mongolian have imported these practices, and both fishing and fish consumption are becoming increasingly common (Chandra et. al 2005). Once again lack of knowledge is associated with this threat group.

There is little history or culture of recreational fishing in Mongolia. Conservation is a very new concept to most 21st century Mongolians, the conservation traditions that date back to *Chinggis Khan* have all but vanished, especially in the new city dwelling population which has surged to 68% (1.2 million people) of the entire population in 2010 up from 57% in 2000 (Reeves, 2011). Personal observations of Mongolian recreational fishermen have shown there is a high degree of masculinity associated with catching taimen. Many fishermen feel proud to bring home a large taimen to share with friends and family, then hang and dry the head to mount on the wall as a trophy. It is widely known that this group routinely fish without licenses, uses illegal treble hooks, and live bait. A general lack of knowledge regarding the immediate threats to taimen preservation is common.



Figure 3: Poached taimen head tacked to a board as a trophy. (Photo: Dan Bailey)

The majority of Mongolian recreational fishermen are affluent members of Mongolian society. This group has the potential to be a key ally to taimen conservation. With the increased amount of technology (i.e. digital cameras and video cameras) and the increased ability within this group to afford cameras, the concept of catch and release fishing has the potential to grow. A Mongolian recreational fisherman may feel the same sense of pride by releasing these endangered fish and showing the photos to friends and relatives back in *Ulaanbaatar*. An added sense of ownership of a species that occurs virtually nowhere else in the



Figure 4: Mongolian recreational angler with several large dead taimen on an unknown river in *Khovsgol Aimag*. (Photo: Ministry of Nature and Environment Tourism)

world can be gained by education and awareness. As was the case with recreational fisheries conservation in the United States, it takes time for conservation practices to take hold. Conservation in the United States flourishes today only after years of negligent abuse of our wildlife resources and concerted habitat conservation and education efforts (Prukop and Regan, 2005). As countries move from developing to developed, attitudes and ethics change in regards to how people value nature (Watson et. al 2009). Increased education is imperative to changing behaviors associated with taimen conservation. As the number of Mongolian recreational fishermen grows there is the possibility that this group will have the largest negative effect on taimen populations through catch and kill practices. However through education and awareness

coupled with a sense of ownership this group may become the strongest advocate for the conservation of taimen.

A growing realization exists that non-catch and release recreational fisheries have the capacity to severely reduce the abundance of fished species (Post et al. 2002; Coleman et al. 2004; Cooke and Cowx 2004). Yet recreational fisheries often produce large economic benefits (Haab et al. 2001; Cowx 2002; Kelch et al. 2006), particularly in rural areas where alternative economic activities are limited (Jensen et al. 2009). In addition to the obvious impact of reducing population abundance via harvest mortality, recreational fishing can have other direct and indirect impacts on fished populations and their ecosystems. Impacts include changes in population or community structure due to selective harvest, loss of genetic diversity, catch-and-release mortality, density- or behaviorally mediated indirect interactions, and habitat disturbance due to physical trampling, boat traffic, and noise (Lewin et al. 2006).

Despite the negative impacts of non-catch and release recreational fishing, recreational fishers constitute a social group that offers unique potential to positively enhance fish conservation (Bate 2001; Arlinghaus 2006). Recreational fishermen as stakeholders for environmental stewardship are important because they can facilitate support for management and conservation. High stewardship among fishers can also foster trust among stakeholder groups as well as between stakeholders and researchers. When fishers have a high degree of stewardship, through personal experiences or effective educational programs, they are more likely to become actively engaged in conservation (Granek et. al 2008). Engaging recreational fishermen, foreign and domestic, at the international airport in *Ulaanbaatar* as well as the regional airport in *Murun*, provides them with education and awareness that they can then utilize in the field. These ideas will be retained as they fish, hopefully contributing to the conservation effort. Taimen, being

such a scarce resource, provide an excellent opportunity to enhance conservation. If the resource is scarce, recreational fishers are likely to feel responsible for its conservation (Arlinghaus, 2006) and may perceive that there is a great probability that their actions will affect change (Ajzen, 1991).

Explaining how taimen have declined and diminished may increase conservation behavior. Providing this information at the start of a fishing trip could thus result in actions that have positive impacts on this species. Studies prove that behavioral intentions towards a species improves in direct correlation to the amount of exposure the individual has to the species (Howe et al., 2013) Research has shown that the effects of catch and release angling on taimen abundance, biomass, mean weight and survival from recruitment to age 10 are minimal (Jensen et al., 2007). This project is based on the assumption that a lack of education is a major driver of resource degradation and that relevant education may improve the long-term viability of taimen and thus recreational fishing in Mongolia.

A third group that threatens taimen populations are local fisherman that live close to the rivers of *Khovsgol aimag* as well as individuals from *Murun* who have access to numerous rivers in this region. This group is widely known to participate in catch and kill practices every time a taimen is hooked and landed. These fish are either consumed locally or sold for profit to wildlife dealers in *Murun* or *Ulaanbaatar*. This target audience is the most difficult to address, because while many know that their actions are illegal, behavior change is difficult as there are economic incentives to engage in destructive activities (WCS, 2008). This target audience has the most damaging effect on taimen populations because of their pursuit of fish during the winter months. Taimen congregate in wintering pools, often times all the fish for several river miles.

When they are targeted at these vulnerable times entire sections of rivers can be wiped clean of taimen (Ocock, 2006).

Rural poverty is very high in Mongolia, 43% of rural Mongolian residents live below the poverty line in comparison to urban areas which have a poverty level of 30% (Dore and Nagpal, 2006). High levels of rural poverty can lead to an increase in poaching for taimen; this increase is attributed to the need to increase incomes at any costs. Prior to 1990 everyone was able to buy basic foodstuffs including flour, rice, tea, and sugar as well as clothing, while education and health costs were met by the state (Pratt et al., 2003). In the current market economy, the family must meet all costs. Costs have not only risen dramatically in the last decade, but are significantly higher in rural areas than in cities. People are poaching wildlife primarily for money. They often have little free time and limited options available to them, therefore they turn “toward the only alternative possible under such conditions- dependency on natural resource utilization” (Pratt et al., 2003). This project did not aim to address these deep rooted social issues, but to provide the awareness that is needed in these rural communities. As local residents become more aware of the perilous state of the taimen, the market for the species may incidentally cut down. This project does not directly address this angling group. As a foreign angler and conservationist I felt from the beginning that this target audience would best be addressed directly by Mongolians. I did not feel that it was my place to approach this group because of the social issues that lead to taimen poaching. This concept will be fully addressed in the methods section of this paper.

Community based conservation projects that address the conservation of wildlife often succeed because the resource in peril provides strong economic benefits to the community through eco-tourism if left intact (Berkes, 2007). Taimen bring in a relatively small amount of

local tourism to rural Mongolia; however, communities do benefit from the hiring of local staff, renting of equipment and the purchase of food. As a result of the small number of tourists, arguably the trickle down benefits are not substantial enough to economically incentivize this threat group. An approach that has been used successfully in Mongolia to negate the lack of economic benefits is the incorporation of a sense of pride and ownership to fuel the conservation mentality. RARE is an international biodiversity conservation NGO based in Arlington, Virginia, whose mission is to “conserve imperiled species and ecosystems around the world by inspiring people to care about and protect nature.” The Pride strategy is designed to inform and motivate people to adopt both a conservation ethic and specific behavioral practices that are less environmentally damaging. The Pride campaigns are branded with a flagship species, a local charismatic animal (taimen in Mongolia) that is selected to provide an empathetic symbol of the local biodiversity. This animal is used in all messages and activities for the program (Jenks et al., 2010). The successful RARE *Onon* River Pride Campaign will be discussed in full.

The use of education and information is necessary to address the threat posed by all three groups. One goal of this project has been to ensure that the information is presented in a manner that can be understood by foreign tourists, urban dwelling Mongolians, and rural Mongolians. Informing these groups is essential for the preservation of this species. As a result of the glaring inadequacies of enforcement for wildlife conservation laws throughout the country as a whole and with very little fear of consequence from breaking these laws education may be the most effective tool. Although the rivers and their natural resources are actually state property in Mongolia, the state is unable to monitor the use of these resources effectively, to make rules that are acceptable to the people, and to enforce those rules. This difficulty in monitoring and the

scant attention paid to quotas, permits and seasons are symptomatic of the general weakening of social controls throughout Mongolia since 1990 (Pratt et. al 2003).

Hatcheries

A fish hatchery is a place where artificial breeding, hatching and rearing of fish species takes place. Fish hatcheries are used extensively for fisheries management; success has been shown using hatcheries to promote threatened and endangered species conservation and recovery (Andreasen and Springer 2001) although controversies exist regarding their negative effects on wild fish populations. While there have been some preliminary efforts in Mongolia and China at captive breeding of taimen, the assessors for the IUCN Red List of Threatened Species feel that if these activities continue it should be with great caution. Cause for concern relates to disease transmission from hatcheries to wild populations, negative genetic effects of hatchery fish (adapted to life in a concrete race way) on wild fish, negative ecological effects (competition, predation, increase in predator populations) of hatchery fish on wild fish, and negative management effects (e.g., increased fishing pressure, resulting in plans suggesting that if there's a hatchery we can always make more fish). Although there is some evidence that captive propagation can help reduce short-term extinction risk for Critically Endangered species, there is virtually no empirical evidence to indicate whether artificial propagation can promote long-term sustainability. Therefore, captive propagation efforts, to the extent that they exist, are at best stop-gap measures and are in no way a substitute for conserving the species in the wild (Hogan et al., IUCN Red Listing 2012).

Over the last year rumors have been swirling on proposals to increase hatchery use in Mongolia, initial reports are unclear and to date the only known hatchery is located in *Khovsgol*

aimag at the confluence of the *Selenga* River. The hatchery issue has caused growing discontent among stakeholders involved in taimen conservation. This issue will be discussed further in this paper as hatcheries pose the largest threat to disrupting collaborative conservation practices in Mongolia.

Mining

Mongolia is in the midst of an unbelievable mining boom; 80% of all Mongolian exports are minerals and this is expected to rise to 95% in a few years. Mongolia's economy grew by 21% in the third quarter of 2011 and the International Monetary Fund (IMF) expects growth to average 14% a year between 2012 and 2016 (Reeves, 2011). The majority of mining is currently being developed in the Gobi desert in southern Mongolia, far from taimen and their habitats. However exploration is taking place throughout the entirety of the country, including the last strongholds for taimen in northern Mongolia. As a result of Mongolia's close economic tie to the mining sector, the country must evolve the economy to diversify their income sources. There is a very real fear that Mongolia will fall into the "resource curse" that has so negatively affected developing countries (Reeves, 2011). Access to incredible natural resource wealth can be a blessing and a curse for a government. If managed properly, the money generated from mining revenues can facilitate the development of a country's social, economic and environmental future. The curse falls on countries that do not manage the wealth accordingly. As the general population sees the lined pockets of well-connected individuals and government employees, a growing level of discord develops. This discontentment among the citizenry can cause social and political unrest as is often the case with resource wealthy countries such as Nigeria.

Mongolia suffered an incredibly difficult transitional period during the 1990s resulting in an increase in rural and urban poverty that had never been witnessed before. If the Mongolian populace that experienced this bleak economic and social period believes money is being squandered, there will be unrest that could further weaken the government and continue the lack of enforcement for wildlife in Mongolia. Between 1989 and 1999 government expenditures in rural areas declined from 50.2 percent of gross domestic product (GDP) to 26.9 percent. This decline reflects a disinvestment in social services in rural areas, resulting in a steady fall in rural resident health, literacy, and overall standards of living (Reeves, 2011). With this decrease in the social wellbeing of the rural Mongolian populace, mass migration to the capital of *Ulaanbaatar* ensued. Within the last few years the population of *Ulaanbaatar* has grown to over 68% of the entire Mongolian population. Many rural residents moved to the capital to access better education and healthcare. More than 60 percent of all doctors practice in *Ulaanbaatar* which has resulted in a lack of healthcare opportunities in rural areas (Dore and Nagpal 2006). If the Government of Mongolia decides to use the money generated from mining revenues to increase investment to rural Mongolian communities in the form of improved infrastructure, better market access, increased education and healthcare, and pasture management than a sustainable form of rural livelihood can be returned to the Mongolian steppe. Couple this with an investment in the enforcement of wildlife laws and regulations and a decrease in the commodification of wildlife will ensue.

Increased incomes in Mongolia have led to an expansion of the Mongolian populace desire for tourism and recreation. Through personal observations I have seen an increase in the number of Mongolians traveling in Mongolia. This increased tourism on a national level has led to more domestic anglers traveling to fish for taimen. If mining revenues lead to an increase in

infrastructure development than the assumption is that the number of Mongolian tourists traveling to the rural areas of Mongolia will also increase.

Recently residents of *Khovsgol aimag* actively and successfully combatted aggressive mining practices. As a result of a United Nations Development Program (UNDP) project called the Community-based Conservation of Biological Diversity in the Mountain Landscapes of Mongolia's Altai Sayan Eco-region (ASP) a sense of local empowerment with the region has been instilled. A crowning accomplishment of this project was the designation of 5.7 million hectares of land (all land in Mongolia above the 50° latitude line) as a Locally Protected Area. This designation bans all mining exploration and extraction and was upheld by the Mongolian Supreme Court. This designation was created in response by a local community group that was formed as a result of the ASP that was alarmed about potential mining exploration of the area. The ASP fostered the empowerment of many rural Mongolians to stand up against an industry that many oppose (Edwards, Eldev-Ochir 2011).

Mongolia has a history of illegal mining exploration in protected areas. Due to the obvious reliance the Government of Mongolia has placed on mining revenue, this Protected Area could face pressure from mining exploration in the future. In December of 2003, a proposal was issued from within the Government of Mongolia to de-protect 3.1 million ha, approximately 15% of Mongolia's protected-area system, so that lands could be opened to mineral activity. This motion was rejected in January of 2004 by the Mongolian parliament's Standing Committees on Economic Protections and Environment and Rural Development (Farrington, 2005). What this suggests is that Protected Areas in Mongolia are vulnerable to mining exploration. Mongolia has placed the entirety of the nation's economy in the mining sector and *Khovsgol aimag* has already proven itself to be rich in mineral resources -- a logical area for extraction in the future.

Most importantly, unregulated mining that results in severely degraded environmental standards will pollute rivers and destroy habitat crucial for taimen survival. One can reference the history of the United States to learn from the years of abuse leveled against the environment and the resulting demise of many endemic salmonid populations, from bull trout in Montana to steelhead and salmon along the coasts of California, Oregon and Washington (Fausch et al., 2006). Taimen require pristine ecosystems to survive and rampant mining will surely have a negative effect on these environments.

Overgrazing

With the transition from socialist to democratic rule in the mid -1990s unemployment rose drastically. In the first year of democratic rule the price of consumer goods rose 32.6 percent, inflation increased by 66 percent and real incomes declined by 30 percent (Rossabi 2001: 77). With the opportunity to acquire livestock through privatization coupled with the bleak economic future for urban Mongolians, many urbanites chose to return to their home *soums* to claim a share of the collective herds and take up a pastoral lifestyle (Fernandez-Gimenez 2001). The herder population in 1990 was 75,000 households and by 1998 the herding population peaked at 243,000 households. With the rise in inexperienced herders came a rise in livestock numbers. Livestock populations (i.e., sheep, goats, yaks, camels and horses) increased from 25 million in 1990 to 33 million in 1998. This vast increase in herd size, and a particular increase in goats to supply China with cashmere, led to severe and unprecedented environmental degradation of the Mongolian steppe (Rossabi 2001).

During socialist rule the *negdels* (herding cooperatives) assisted with the long and expensive moves to seasonal grazing areas, when this was removed rural Mongolians did not have the infrastructure or money to continue these seasonal migrations. This resulted in families

occupying areas for longer periods of time often degrading pastures through overgrazing practices. In 1990 scientists and *negdel* managers reported that the vast majority of Mongolia's grazing land was in good or excellent health. The degraded areas represented 7% of total rangeland and responded well to reduced grazing pressure. By 2001 70% of all grazing land was labeled degraded and areas in central and southern Mongolia experienced an increase in desertification (Reading et al. 2006).

Overgrazing has many negative effects on stream characteristics. As animals degrade the stream bank the river becomes much wider and increasingly shallow. This results in higher water temperatures and losses of in-stream habitat. The increased sediment load alters spawning areas and essentially suffocates macro invertebrate populations decreasing forage for smaller fish. Salmonids require cold clean water to thrive, when stream degradation occurs salmonid numbers such as taimen and lenok decrease and are replaced by species that can cope with the degraded conditions (Vander Zanden et al., 2007).

Commodification of Wildlife

During the transition to a privatized economy, with the market all but gone for animal products, a near three-fold increase in herder numbers, and the subsequent strain placed on the environment from the millions of additional livestock, alternative forms of income had to be found. The overly rapid privatization left most herders with barely sufficient animals for personal/family needs. It is understood that a herding family requires between 100-150 animals to provide for domestic uses and to market their products (Rossabi 2005). Families with less than 75 head must slaughter animals for subsistence purposes and rarely have enough of a surplus to benefit financially. By the mid-1990s one third of herding families lived below the poverty line and could not profit from the small sizes of herds that were owned (Rossabi 2005).

For rural herding families that were attempting to survive on few animals with marginal grazing land times were incredibly hard. Poor families were forced to find alternative sources of income to supplement the meager earnings from their animals. Many of these individuals turned to wildlife poaching and trade on the newly created free market. The commodification of wildlife was fostered by the close proximity to Chinese markets. During this time a Mongolian herder had a very difficult time accessing domestic livestock markets. A lack of animals or transportation proved the largest impediment and suddenly the wildlife market began to seek herders out. Buyers would actively seek wildlife products and the wildlife market was always strong, something the livestock market had lost.

In 2008 the Wildlife Conservation Society participated in a wildlife trade survey focusing on four markets in *Ulaanbaatar*. Over the course of 5 visits to these markets Wildlife Conservation Society volunteers found taimen for sale on 11 occasions and 21 taimen were being marketed. Dealers were aware that taimen are a rare species and that trade is illegal, and often



Figure 5: Illegally caught and killed taimen for sale at *Naraan Tuul* market in *Ulaanbaatar* (Photo: Wildlife Conservation Society)

kept the taimen hidden. Reported sizes of taimen were from 1 m to 1.4 m (39-51 inches), and 10kg-14kg (22-31 lbs), and priced from 3,500-10,000 MNT (\$2.60 - \$7.60) per kg (WCS, 2008). These fish are often targeted during the winter when they have congregated in deep wintering pools (Balbar, 2009).

Previous Conservation Work and Current Outlook

In an effort to combat the threats described private fishing outfitters began to implement place-based conservation projects on the watersheds in which that specific company operated. Taimen conservation in Mongolia developed with the concept that the three best rivers systems (*Eg/Uur*, *Onon/Balj* and *Delger Murun*) were managed by the three outfitters (Sweetwater Travel, Mongolia River Outfitters and Fish Mongolia respectively) that operate on these waters. This “line in the sand” approach was driven by each outfitting groups’ desire to protect those individual special places.

When Mongolia opened up to the world in the mid-1990s the first wave of recreational anglers arrived. Speaking with the early pioneers of taimen sport fishing, these anglers came because they had heard stories of enormous trout that would readily attack top-water flies. The founders of Mongolia River Outfitters and Sweetwater Travel saw from an early stage that taimen were susceptible to poaching, habitat loss, and excessive fishing pressure.

While there was pressure from outside groups during the late 1990s Sweetwater Travel and Mongolia River Outfitters were able to operate in relative isolation. Tourism in Mongolia had not yet expanded as Mongolian nationals were still reeling from austerity measures that hampered economic growth and resulted in widespread poverty. Infrastructure was in such poor condition that access to rivers was nearly impossible. As these companies began to grow and expand along with national and international interests in taimen fishing, it became clear that these conditions would not persist. Furthermore as the number of incidents of unlicensed and illegal fishing increased, it was evident that outfitting companies would receive little help with enforcement of regulations from the *soum*, *aimag*, or the national government.

During the time period (2000-2005) foreign and domestic angler numbers rose dramatically. International anglers began seeing pictures and hearing stories of incredibly large taimen coming out of Mongolian rivers. This resulted in the expansion of the taimen angling industry. A report issued by the Mongolian Ministry of Road Transportation and Tourism found that during the same time period tourism in Mongolia had grown by 250% from 137,374 travelers in 2000 to 338,725 travelers in 2005, what resulted was an explosion of Mongolian tourist companies offering trips across Mongolia. The majority of these companies would offer cheap taimen fishing trips in hopes that they could lure anglers primarily from Eastern Europe. The companies offering low cost trips had no background in catering to anglers and they had no concept of conservation and catch and release. As a result foreign and domestic anglers began to descend on the rivers of Mongolia in unsustainable numbers; fishing with outfitters that did not provide permits and participating in catch and kill angling practices. This not only hurt taimen populations in Mongolia but it also damaged the reputation of the sport fishing industry in Mongolia as well.

From 2000-2005 taimen fishing in Mongolia went largely unregulated, angling pressure sky rocketed and taimen numbers and distribution decreased dramatically. Exact numbers are not known for several reasons. Many of the tour companies were not acquiring licenses so the numbers of anglers were undocumented. The specific decrease in taimen numbers and distribution is also unknown as a result of the lack of baseline information. No studies were conducted to provide population estimates or in-depth distribution ranges for Mongolia prior to 2004. Most of the information during this time period comes from observations by anglers, tour operators and local residents. The established outfitting companies that provided high end trips to their clientele saw what was taking place on the rivers of northern Mongolia and these

observations fostered a mentality to protect the watershed and resource in which each group had invested. There simply were not enough resources to protect all the rivers in Mongolia. A focus was placed on the rivers that had established outfitters operating within the system.

During this time conservation minded outfitters were the primary actors in taimen conservation. Partnerships began to form on watersheds where Sweetwater Travel, Mongolia River Outfitters and Fish Mongolia operated. Sweetwater Travel formed the first successful collaborative taimen conservation campaign on the *Eg/Uur* watershed. Six-hundred miles away, Mongolia River Outfitters and WWF-Mongolia commenced their efforts on the *Onon/Balj*. Fish Mongolia followed with community development projects and taimen conservation initiatives on the *Delger Murun*.

It is important to understand that taimen conservation in Mongolia operates today because of the three listed outfitters (Sweetwater Travel, Mongolia River Outfitters and Fish Mongolia). These groups were the catalyst that promoted taimen conservation throughout the country, advancing efforts to the point they are today. The work addressed in this section was developed through numerous public, private, NGO partnerships that grew on a place based level. The work that has been accomplished was not done so on a national level, but was implemented in specific regions of the country. While the conservation work has been exclusively place based, the partnerships that were formed between private fishing outfitters and non-governmental organizations served as an avenue to raise money and awareness to taimen conservation on a global level.

Sweetwater Travel/ Hovsgol Travel

Sweetwater Travel partnered with *Hovsgol* Travel and began operating trips in 1995. This partnership has maintained the longest running fly-fishing only outfitting business in Mongolia. Sweetwater Travel was the pioneer in hosting western clientele and has created a strong and flourishing business over the years. They have been active participants in taimen conservation since the beginning and through the hard-work of Charlie Conn, Taimen Fund Manager, have been able to raise over \$400,000 USD from their clientele alone for taimen conservation efforts on the *Eg/Uur* watershed. Over the years, Sweetwater Travel has conducted scientific monitoring, implemented tagging programs, increased education and enforced catch and release laws. They have also successfully increased the number and mobility of rangers in the watershed by providing transportation (boats and motorcycles) as well as ranger check stations on bridges. Sweetwater Travel and their partners have taken an active role in combating the lack of enforcement that occurs on their watershed.

Over the years the *Eg/Uur* watershed has grown increasingly popular by unlicensed foreign and domestic anglers. To combat this Sweetwater Travel and their partners have actively pursued enforcement opportunities and funded poaching patrols that in 2012 resulted in the confiscation of 44 fishing rods, 23 spears, 9 fishing nets, 3 boats and fines totaling 7.5 million Tugriks (\$5,800.00USD). These numbers come from data collected by the rangers in the *Eg/Uur* watershed and show a 30% increase in fines and confiscations from the 2011 season. This aggressive enforcement approach was conducted as a direct result of the lack of governmental enforcement that is common throughout Mongolia.

In 2004 Sweetwater Travel and partners began hosting the Taimen Science Camp along the *Eg/Uur* watershed. This \$2,300,000 USD, five year project funded by the World Bank,

Global Environmental Facility (GEF), and the International Finance Corporation (IFC) provided an opportunity for researchers from the University of Wisconsin-Madison, University of Nevada-Reno, and University of California-Davis to undertake the most extensive study of taimen ever conducted. This study assessed population status, migrations, threats to populations and the role of taimen as part of the broader ecosystem. This study played a crucial role as the foundation for biological data on taimen and helped turn taimen conservation into a national topic.

The Tributary Fund and the Taimen Conservation Fund were two nongovernmental organizations created as a result of this project. The Tributary Fund (TTF) began with the hopes of fostering a faith-based conservation ethic by rebuilding the *Dayan Derkh* Buddhist monastery in *Khovsgol aimag*. The monastery was one of many destroyed in the 1930s during a purge ordered by Mongolia's communist leaders. Buddhists were executed, imprisoned, or exiled, and the religion was effectively outlawed (www.thetributaryfund.org). The Tributary Fund continues its work with Sweetwater Travel and has established the Taimen Fund. This fund has an annual operating budget of \$25,000 USD per season to help with taimen conservation efforts in the *Eg/Uur* Watershed in Northern Mongolia.

The Taimen Conservation Fund (TCF) led by *Puji Shirendev* co-owner of *Hovsgol* Travel was also created through this project. The TCF was initially designed to act as the national taimen conservation NGO and played an integral role in securing funding opportunities and promoting taimen conservation to an international audience. Throughout the completion of the five year project the TCF played a dynamic role encouraging cooperation between Mongolian and foreign scientists and provided the Mongolian leadership that was required for this project to be successful. Following the completion of the *Eg/Uur* taimen conservation project the TCF

continued to operate, and for those of us working outside of the *Eg/Uur* this was seen as a great opportunity for taimen conservation expansion.

Unfortunately the TCF distanced itself from the conservation community and began to work on projects that were unclear to traditional partners Sweetwater Travel and TTF. Moreover, following the loss of funding with the completion of the taimen science project the TCF received annual donations of \$100,000 USD by Boroo Gold Inc. for a period of four years. Boroo Gold Inc. is a large mining conglomerate that operates in Mongolia. To date, the true expenditure of money intended for a national taimen conservation program is unclear. Furthermore the TCF has been pushing for the creation of taimen hatcheries in Mongolia in the face of strong opposition from the scientific, tourism and economic stakeholders. One outcome of the *Eg/Uur* taimen conservation project was that it legitimized the reputation and work of the TCF, this organization has been able to use this in their advantage to propose hatcheries despite such opposition.

Mongolia River Outfitters/ Nomadic Journeys

Mongolia River Outfitters (MRO) was established in the late 1990s with the specific purpose of catalyzing taimen conservation along the *Onon/Balj* watershed in the eastern Mongolian province of *Khentii aimag*. MRO has operated throughout its entirety placing taimen conservation at the forefront of its business practices. MRO has started guide programs for local residents, partnered with WWF to film an award winning documentary promoting taimen conservation in the region, created a taimen conservation trust fund and continue to implement a mark recapture program on the *Onon* River. MRO began partnering with WWF-Mongolia in the mid-2000's and formed a conservation partnership between six *soums* along the banks of the

Onon River. Together, MRO-WWF-*soums* established the world's first Taimen Sanctuary in 2008. The sanctuary protects more than 200 miles of taimen habitat through various use restrictions and requirements that target taimen. All anglers must use catch and release practices as well as single barbless hooks; the use of motorboats is banned; and mandatory streamside setbacks are in place for all commercial forestry, mining and permanent tourism infrastructure. To improve public awareness of taimen conservation and build broad-based support for the Sanctuary, MRO/WWF-Mongolia/*soums* came together to initiate the RARE campaign.

In 2009 Mongolia River Outfitters in collaboration with WWF-Mongolia and the RARE campaign began implementing the *Onon* River Pride Campaign. This project was implemented by *Gankhuyag "Gaana" Balbar* a WWF employee and native resident to the project area in close collaboration with RARE staff and Mongolia River Outfitters staff. This campaign targeted six communities along the *Onon* River and was designed to conduct a Theory of Change mentality among local residents. A Theory of Change is a specific and measurable description of a social change initiative that forms the basis for strategic planning, on-going decision-making and evaluation. The non-profit RARE organization has developed a method for motivating behavior change and community support. This method has been tested and refined with 200 projects in more than 50 countries to date and is called the Pride campaign. Pride campaigns create a stronger emotional and cultural connection between people and their natural environments. Pride campaigns have dramatically reduced human related threats to important ecosystems throughout the world. The basis of each Pride campaign falls on the concept of Theory of Change methodology.

This successful, local community based project engaged local residents through advertisements, community outreach, school sponsored activities and recently the incorporation of known taimen poachers into local fishing clubs. This project created a sense of ownership and responsibility among local residents resulting in widespread support for taimen conservation in the region (Balbar 2009). The development of the fishing clubs is a very new concept that draws on anglers in the community and has become the focus for change. The members are able to coalesce around their shared passion for fishing. To combat the common historic angler catch and kill practices, members have been provided digital cameras and log books to promote river



Figure 6: Members of the *Batshireet* Fishing Club along the *Onon* River with the WWF-Mongolia Assessment team. *Gaana Balbar* is pictured 4th from the left. (Photo: Yuruult Tumenjargal)

monitoring and catch and release. I spoke with a fishing club member who before this campaign admitted to killing over 300 taimen in his lifetime. Once he learned about taimen conservation through the *Onon* River Pride Campaign he has become a strong taimen conservation advocate. Showing me his log books he caught and released 36 taimen since 2009. This was a common theme I encountered while working in the area, many anglers openly admitted to the number of taimen they had killed before the implementation of this project. Now these same anglers who caused so much damage to the taimen populations are some of the strongest supporters of taimen conservation in the region. In May of 2012 I was requested by WWF-Mongolia to help MRO/RARE/WWF with implementation of a Patagonia-World Trout Initiative grant to help strengthen the conservation advocacy of nascent fishing clubs (APPENDIX B).

During July of 2012 I spent 12 days touring the study area conducting interviews with local anglers and members of *soum* and *aimag* governments. During this time it became clear that the six *Onon* River Fishing Clubs were not homogenous in their structure and function but incredibly consistent in their ideas, actions, and desires for future conservation work. The six clubs range in membership levels as high as 16 for the *Dadal* Fishing Club to as low as 3 for the *Norvolin* and *Bayaan-Uul* Fishing Clubs. All of these groups operate some form of river monitoring from actively patrolling sections of the *Onon* during peak angling times to observing the river on their own fishing outings. Shared interests in fishing as well as a strong desire to see the *Onon* restored and protected for future generations holds these fishing clubs together. These groups have fundamentally changed the attitudes of the majority of residents and anglers living along the *Onon* River. This fundamental shift can be directly attributed to the social marketing campaign that was conducted by WWF-Mongolia, the RARE campaign, Mongolian River Outfitters/ Nomadic Journeys in collaboration with the six *Onon* River Fishing Clubs. This

change in attitude has placed the taimen and the *Onon* River at the forefront of the image that *Khentii aimag* portrays nationally and internationally.

Fish Mongolia

Fish Mongolia began operating on the *Delger Murun* River in 2003 and has played an active role in the conservation of taimen in the region. Fish Mongolia is dedicated to taimen conservation and considered to be among the most ethical and responsible outfitters operating in Mongolia. Fish Mongolia has embraced the true concept of eco-tourism being actively involved in conservation and working with local communities to improve their livelihoods and give them an incentive to protect their natural resources. Fish Mongolia has encouraged and funded community and volunteer rangers to actively patrol the *Delger Murun* River and support local community initiatives. Conservation and community projects have included: assistance to local villages to provide fresh drinking water for their citizens, contributing to ranger salaries, donating two motorbikes for rangers, sponsoring environmental education events and supporting local community-based conservation initiatives. In 2009 Fish Mongolia wrote and published a comprehensive taimen conservation article and paid for its publication in the inflight magazine of the largest domestic airline in Mongolia, Eznis Airways. This article was printed in English and Mongolian and provided all of the necessary information needed to promote taimen conservation. This article was highly successful in reaching our large target audience.

All of Fish Mongolia's work has been out of pocket as there has been no financial support from large donor agencies. The founder and owner of Fish Mongolia, Andy Parkison, has been a fulltime resident of *Ulaanbaatar* for the last 12 years. This has not only allowed him to be an active representative for the interests of the outfitting community, but has earned him a

highly regarded status as the resident taimen expert. His input in management policies has been irreplaceable as he is the only outfitter present at many national level meetings.

In 2010 Fish Mongolia signed an MOU with the National University of Mongolia laying the framework to host Mongolian graduate students in a long term population assessment of the *Delger Murun* River. Collaboration with the National University has expanded educational opportunities in fisheries management for Mongolian students and will increase the amount of biological data on taimen in Mongolia. This is an important outcome as Mongolia substantially lacks baseline information for taimen numbers throughout the country.

Fish Mongolia staff and guides started a Mongolian NGO called *Saruul Taal* (Endless Steppe) to implement conservation issues directly related to taimen. This NGO provides a legitimate funding mechanism to allow Fish Mongolia to raise and distribute funding for taimen conservation efforts on the *Delger Murun* River, and also serves as an official entity through which the Airport Campaigns in *Murun* and *Ulaanbaatar* can operate. Future plans include engaging with Chinese mining firm Origo Partners Plc who have proposed plans to mine 256,000 tons of molybdenum and 54,000 tons of tungsten from a mine less than 20 miles away from the *Delger Murun* River. Fish Mongolia staff feel this mine will have a direct negative effect on our water resources and while we want to play an active role in the development of this proposal we would ultimately like to see this concept abandoned. Unfortunately the proposed molybdenum mine falls below the 50° mark allowing the potential for development to move forward.

The ongoing conservation work has been completed under the concept of “not in my river”, that is to say that outfitter investment in taimen conservation was focused exclusively on the river that the outfitter was financially invested. It is widely known that this resulted in the

protection of certain rivers while others were left unattended and in turn suffered from the lack of conservation. However because of the site specific conservation efforts, enough support has been generated to encourage the Government of Mongolia to organize and implement national strategies for taimen conservation. On paper the taimen laws and regulations as defined by the MNET are all encompassing they are not implemented effectively at the local level.

All three conservation programs move along separate tracks and are most certainly stimulated and supported by the individual outfitters and focused upon their rivers of concern. However, all three programs communicate freely, sharing lessons learned and ideas. All three have produced conservation successes, including ramping up lessons learned (e.g., catch/release, barbless hooks, artificial bait) to the national level.

As mentioned this was accomplished with little formal collaboration among outfitters yet informal collaboration and communication was high. Conservation mentality strictly followed the ideal that protecting individual rivers was more important than protecting the entire ecosystem. This mentality was essentially the only option available. Outfitters did not have the resources to protect anything other than their immediate rivers and the limited capability of the Government of Mongolia would not allow Sweetwater Travel, Mongolia River Outfitters and Fish Mongolia to look beyond their individual resource.

In summary, at the onset of the SOR project the three conservation-oriented groups were all involved in separate taimen conservation strategies that primarily looked inward. Competition remained high and relationships were pleasant but lacked close working partnerships. I came to taimen outfitting and conservation in 2007 as a guide for Fish Mongolia. I was not involved during the early years when relationships between outfitters were less formal.

After several years of guiding and working with taimen conservation it became clear to me that individually the organizations were striving for the same outcomes: regulated and controlled taimen fishing. That was the inspiration for developing a collaborative approach to taimen conservation in Mongolia.

Developing a Collaborative Approach to Conservation

There is extensive literature on the potential positive conservation outcomes that can result through collaborative partnerships. Collaborations such as the Blackfoot Challenge in Montana and The Wild Salmon Center in Oregon have led to comprehensive wildlife conservation work that previously would not have been possible. Collaborative partnerships are born out of stakeholders shared goals, common problems and a sense of crisis. The previous section clearly shows that these attributes existed before the SOR project began and continue to play a role in the work we have implemented as a collaborative group. Many practitioners believe the reason to develop collaborative partnerships is to improve the state of the environment (Yafee and Wondellock, 2000). This can be accomplished through several avenues including the sharing of resources, such as funding and labor in conjunction with agreements between practitioners and researchers on conservation objectives (Lauber et.al 2011). It is widely accepted in the conservation community that social, cultural and economic systems are intertwined with biological problems and their solutions (Keough and Blana, 2005). Authors from many disciplines have called for collaborative multi-disciplinary approaches to solve these problems and collaborative conservation has the potential to address these issues through comprehensive inclusive designs (Keough and Blana, 2005).

The positives of collaborative conservation played a direct role in the design of the procedures for this project. As we began to look at taimen conservation on a larger scale the need for increased collaboration became evident. One of the largest impediments that kept taimen conservation from expanding beyond individual watersheds was a lack of resources. The ability to draw on a pool of resources, both financially and technically, has created an opportunity to finally expand taimen conservation to a region wide level with a national campaign closely on the heels of this project.

Collaboration between Stakeholders

In spring 2010, the Tributary Fund hosted the first comprehensive taimen conservation meeting which was held in Bozeman, MT and involved all of the stakeholders that live and work on taimen conservation from the United States and Mongolia. Through conference and skype calling, this meeting provided an opportunity for each group to share what they had accomplished over the years, but no concrete plans were made to move forward as a unified group. It was during this first meeting that I was introduced to the work of the RARE campaign supported by MRO and WWF-Mongolia. Learning how they used education and awareness strategies to change mentalities of local anglers inspired me to use the same concepts to promote taimen conservation to foreign anglers in Mongolia.

The concept of running airport campaigns was discussed during this meeting, but as is very typical with large meetings specific actions never materialized. All stakeholders agreed that airport campaigns would be helpful for taimen conservation and pledged support during the meeting. I saw that no one would take the lead on this so I decided to develop the concept. My first approach was to hold separate meetings with all stakeholders, with the purpose of

determining the level of commitment and support of the project from each group. These meetings were useful as they not only gauged interest, but they allowed me to incorporate stakeholder comments and concerns into the development of the process. This proved invaluable as it created a sense of ownership of the project and its design from the beginning stages of development and provided an avenue for potential fundraising opportunities. After I completed my initial meetings I used the information to develop specific project plans.

Because I knew that all groups supported the airport campaigns, advancement of the project as well as requests for financial support was much easier. Initially stakeholders were hesitant to donate time and money, but as they saw the project develop, all affiliates provided technical and financial support. Financial support was provided for the printing of brochures, advertisement space and tagging equipment. Technical support ranged from setting meetings with influential members of the Government of Mongolia to collecting and organizing decades of first hand observations and information. This was the first time that involved stakeholders came together to support a taimen conservation initiative as a unified group.

Spirit of the River

It was understood from the beginning of this project that a symbol and message were needed to promote taimen conservation from a Mongolian viewpoint. The project simply would not work if it appeared as though foreign anglers were telling Mongolians how to manage their resource. Fortunately I was able to sit down with

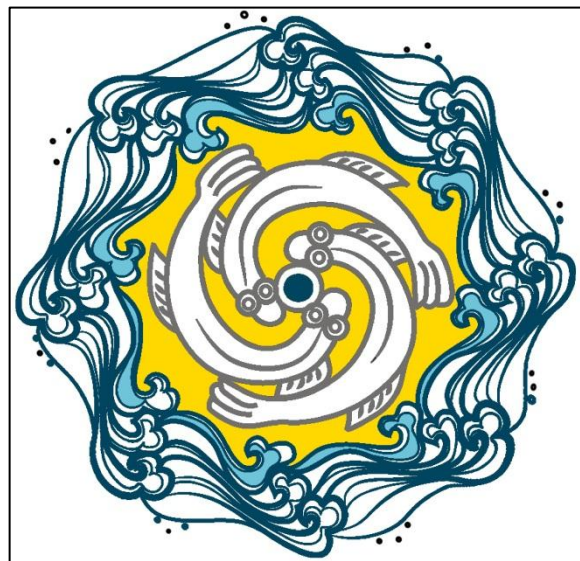


Figure 7: "Spirit of the River" campaign logo.

a cohort of Mongolians who work in the taimen outfitting business and collectively draft a message that was clear, concise, comprehensive and most importantly written from a Mongolian view-point. It was always clear that one of the products of this project would be a brochure intended for distribution to foreign anglers.

During our initial work a symbol was created along with a campaign message, “Spirit of the River”. Mongolians have a strong cultural relationship with animistic concepts (Hessig, 1990) and we built upon that tradition. The brochure states:

“Mongolians believe that the rivers are part of the god, or spirit of land and water.

Taimen are considered as the ‘animals of the spirit’ of ‘children of the river god’ so traditionally Mongolian did not eat fish, and give great respect to rivers and taimen.”

To all of the stakeholders involved the promotion of a Mongolian message was crucial. The brochure was designed to speak with a Mongolian voice and the pictures display Mongolian anglers participating in catch and release taimen fishing. The intention was to provide a sense of ownership for this species among Mongolians, emphasizing that foreign anglers taimen fishing in Mongolia should be familiar with Mongolian regulations and the cultural significance of taimen to Mongolian people.

Development of this project was intentionally designed to promote the Mongolian voice for taimen conservation. As the brochure was in the process of development, drafts were continually sent to stakeholders for comments and suggestions. The final product was truly a collaborative message that sends a clear and comprehensive message about taimen conservation in Mongolia. The “Spirit of the River” campaign provides information on the unique life cycle of the taimen, background information, Mongolian Laws and Regulations and catch and release

guidelines. This brochure has been translated in six languages (Mongolian, English, Russian, Czech, French and German). These languages were selected because as a group we determined that the majority of the foreign anglers that come to fish in Mongolia could understand and speak one of these languages. The messaging we used was not confrontational; there was no “finger wagging”, and we hope that by explaining the situation we are empowering people to do what is right for this species.

This brochure (APPENDIX C) marks the first time that all of the stakeholders involved with taimen conservation came together to promote a project that looks beyond their individual resource. This is attested by the number of sponsors that are displayed on the back page of the brochure; there are 15 organizations represented from government organizations, private businesses and NGOs. WWF- Mongolia and their partners involved with the *Onon* River Pride Campaign allowed us to reprint material that was created for the Campaign and change it to incorporate other areas of Mongolia. Additionally we were able to use an illustration that was designed for the Pride Campaign depicting a Mongolian angler releasing a taimen for the front of our brochure. This has promoted an image that is easily recognizable. Our hope is that through the use of a widely recognized symbol of taimen conservation, the collaboration of stakeholders around this issue will also be acknowledged.

Murun Regional Airport Campaign

In July of 2011 support and permission was gained by the *Khovsgol aimag* minister of Nature, Environment, and Tourism (MNET) as well as the *Murun* airport administrator to build an informational kiosk that greets all incoming flights. This support was gained through in person meetings in which we outlined our project design and goals moving forward. The purpose



Figure 8: Tourist examining the taimen conservation kiosk in the *Murun* Regional Airport. (Photo: Dan Bailey)

of this kiosk is to provide information on catch and release fishing practices, provide information on proper licensing procedures, and inform all incoming fisherman of the Taimen Laws and Regulations determined by the

MNET. This kiosk has been designed to be self-operational

and require limited maintenance by airport personnel. Thanks to the kind support of the *Murun* airport administration no fees are being levied for rental space for this project.

Distance from the town of *Murun*, three daily flights, and long hours of downtime between flights validate why this kiosk is self-operational. Foreign tourists as well as Mongolians from the capital city of *Ulaanbaatar* have been targeted. During the 2011 taimen season 250 SOR taimen catch and release brochures were handed out to foreign and domestic anglers. This brochure was provided in English and Mongolian. Over the winter of 2011-2012 the SOR brochure was translated into the six languages mentioned (Mongolian, Russian, Czech, German, French and English) and a printing of 3,000 brochures (500 of each language) was completed.

The brochures were placed in the *Murun* airport on June 13, 2012 two days before the official start of the taimen fishing season. To our surprise all 3,000 brochures were gone by mid-

August. What we witnessed was that as passengers entered the small regional airport the only thing to keep them occupied while waiting for their bags was to spend time reading the information that we had set up for taimen conservation. All tourists were taking brochures regardless of if they were taimen anglers. As a result we ordered an additional printing of 4,500 brochures to ensure we had an ample supply of brochures available for the busiest taimen fishing season, September 1- October 15. While it was an unforeseen cost to supply brochures for all tourists it was viewed positively, we feel that it is beneficial to get your message out to as many people as possible. The more exposure individuals have to species of concern the more inclined they are to view protection of that species as beneficial (Aipanjiguly et al., 2002). I am very confident that our relationship with airport staff will continue to grow; they have already shown that they can maintain the kiosk and replenish brochures when it is needed.

Chinggis Khan International Airport Campaign

Advertisement space in the international arrivals baggage claim area of the *Chinggis Khan* International airport has been rented on a 12 month contract starting in June of 2012. This space was selected as it has the highest likelihood to address the foreign angler target audience. Taimen conservation material is displayed at this key location.

Foreign anglers coming to Mongolia are difficult to target outside of the *Chinggis Khan* Airport and the *Murun* Regional Airport. Most foreign anglers

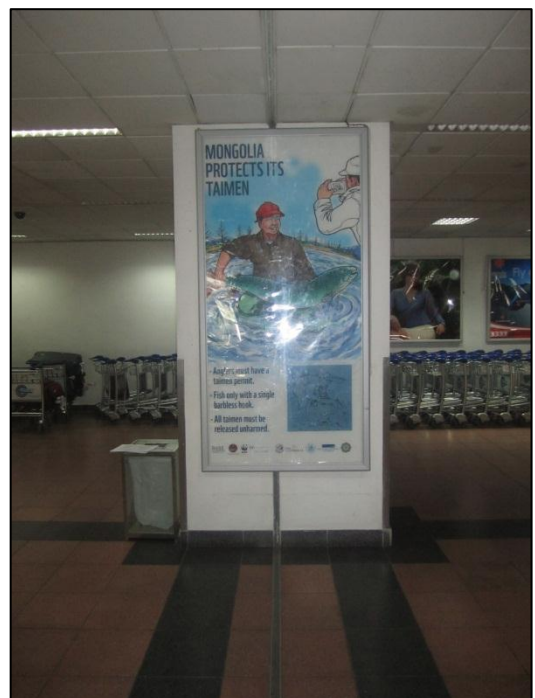


Figure 9: Airport advertisement in the international baggage claim at the *Chinggis Khan* International airport in *Ulaanbaatar*, Mongolia (Photo: *Khulan Munke-Erdene*)

spend very little time in the capital which makes targeting this group outside of the airport challenging. That is why the international baggage claim was selected as the first site to target this audience. Through personal observations it has been witnessed that foreign tourists walk around viewing advertisements anxiously awaiting their bags. The thought process behind targeting this area is simple, if the first message this audience observes when they land in Mongolia is information about protecting taimen; it will send a clear message that Mongolia is serious about taimen conservation.

An agreement was reached between all stakeholders and WWF-Mongolia for a cost sharing plan for this space. Targeting taimen anglers during the winter months (November-May) is unnecessary. WWF-Mongolia has agreed to pay an increased portion of the airport rental costs with the plans to place additional current wildlife conservation material during the taimen down season. This allows WWF-Mongolia to utilize the space 12 months a year.

Social Marketing Campaign Khovsgol Aimag and Provincial Capital Murun

During the first field season (July 2011-September 2011) an education and awareness campaign was conducted in the city of *Murun* targeting the local population. On August 8th 2011 an educational workshop was held to share information that addresses the unique lifecycle of taimen, the threats they face and approaches to prevent their continued decline. This meeting was hosted by *Jangar Battahu*, myself (Fish Mongolia staff) and *Gankhuyag “Gaana” Balbar*, WWF employee and project manager for the *Onon* River Pride Campaign. *Gaana* brought members of the *Onon* River fishing clubs to *Khovsgol aimag* to discuss their role in taimen conservation. This was an eye opening experience for many of the *Murun* anglers involved, a majority of the fishing club members that attended from the *Onon* River had a history of catching



Figure 10: Jangaar Baatahu explaining Fish Mongolia's tagging protocol to local anglers. (Photo: Dan Bailey)

and killing taimen, to have them share their stories on why they now fight to protect taimen was very compelling.

This was the first time that a meeting involving Mongolian taimen fisherman and conservationists from different *aimags* came together to discuss a shared vision for taimen conservation in Mongolia. The highlight of these

meetings was the fact that it was Mongolians speaking to Mongolians; I facilitated the meeting but left the discussion to the Mongolians involved. After hearing the stories from the Onon River fishing club members the *Khovsgol aimag* Fishing Club was born out of this meeting. Seven anglers agreed to try and recruit additional anglers to emulate the fishing clubs that were formed on the *Onon* River.

Mark-Recapture-Tagging Program Delger Murun River

A tagging program was financed and implemented during the 2011 field season and will continue operating in perpetuity. This program is a joint venture between Fish Mongolia and the National University of Mongolia. An MOU was signed during the spring of 2011 (APPENDIX D) that explains the scientific relationship between the school of Biology and Biotechnology within the National University of Mongolia and Fish Mongolia's role in the taimen population assessment. This tagging program provides valuable data on the overall health and population of taimen numbers in an 80-mile section of the *Delger Murun* River. The tagging data collected provides valuable information to the *Khovsgol aimag* government on taimen health and numbers.

This data will be used to determine license quotas, fishing seasons and the number of anglers allowed on the *Delger Murun* River.

Involving recreational fisherman in management strategies such as tagging and monitoring will begin to incorporate this group as stakeholders in the conservation of this fishery. Research shows fishermen have the potential to inflict the largest negative effect on this species. In a paper published with data taken from the *Eg/Uur* watershed it shows that if recreational fisherman do not follow proper catch and release practices resulting in 50% mortality, then population size can be expected to decrease by 69%, biomass by 50%, mean weight by 73% and a 68% reduction in fish reaching maturity (Jensen et. al 2009).

Oregon RFID 12 mm HDX Passive Integrated Transponder tags (PIT) tags have been used during this mark recapture study. A PIT tag is a radio frequency device that transmits a unique individual code to a reader where it is displayed in a numeric or alphanumeric form. The tag has no internal battery, hence the term “passive”. The reader powers or excites the tag circuitry by radio frequency induction and receives the code back from the tag. Radio frequency identification does not require line of sight, tags can be read as long as they are within the range of a reader.



Figure 11: Tagging example for taimen on *Delger Murun* River (Photo: Dan Bailey)

PIT tags were designed for positive identification; because they are passive they are not capable of long-distance tracking. The implant site is dependent upon the species, size of the animal and the size of the tag (Arizona Game and Fish Department, 2012). After a taimen is caught by Fish Mongolian clients or staff the taimen are placed in a protective fish sling to ensure that the fish is secured and cannot cause harm to itself. Due to the large size of the fish inter-muscle tagging was conducted. This method allows the tag to be left in the void created by the needle, and thereby reducing the chance of breakage that may occur if the tag is forced into the muscle.

Tagging data provides insight into taimen health and numbers along the *Delger Murun* River. Taimen data in Mongolia is incomplete and limited to three rivers; the *Eg*, *Uur* and *Onon* and this in a country of more than 4,000 rivers. Adding additional rivers to this list will allow cross-comparison of growth rates, recapture and monitoring. This information will be used to show the Government of Mongolia as well as the *aimag* government a picture that will allow them to make management decisions regarding the number of permits to issue, season scheduling and to oppose the introduction of hatchery management approaches.

In 2010 the *Khovsgol aimag* government considered the possibility of putting a ten year moratorium on taimen fishing. Knowing that they would not have the enforcement to patrol the region it was widely assumed that the outfitters participating in taimen conservation would not be allowed on the rivers and essentially the rivers would be unpatrolled. It became clear that holding scientific permits issued by the MNET would allow outfitters to continue conducting scientific research. Partnering with the National University of Mongolia allows Fish Mongolia to continue to have an active presence on the *Delger Murun*. Simply having an active presence on the rivers of Mongolia deters a substantial amount of illegal angling pressure.

Problems, Concerns and Opportunities

The section addresses the problems and concerns that developed throughout the project; additionally it provides avenues moving forward to ensure long term continuation of the project. As such, I structured the section to first address problems and concerns and then opportunities for each of the following activity areas: overall collaboration between stakeholders, Spirit of the River Campaign, Murun Regional Airport Campaign, Chinggis Khan International Airport Campaigns, Social Marketing Campaign Khovsgol Aimag and Provincial Capital Murun, Mark Recapture Tagging Program Delger Murun River

Collaboration between Stakeholders

Problems and Concerns

Sadly the new found collaborative support developed through this project is under threat. Within the last year members of the TCF began to move forward with plans to build taimen hatcheries in Mongolia. While the overwhelming majority of all stakeholders oppose this concept it has forced the varying groups to once again look inwardly to protect their individual resource (i.e., specific river tracts). The common belief is that Mongolia still has healthy viable populations of taimen and that the risk is not such that the introduction of hatchery fish is necessary. It is believed that protecting habitat, increasing enforcement and providing education and awareness to all will be enough to protect and conserve the remaining taimen left in Mongolia. Hatcheries bring high uncertainty to Mongolia. Many of us are fearful that hatchery fish will have negative effects on the wild genetics that are found in Mongolia's taimen populations. Additionally the potential for introduction of invasive species including sport fish such as rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) will have an

unknown effect on Mongolia's endemic salmonid populations. It is evident in Montana that the introduction of non-native sport fish (rainbow, brook, lake and brown trout) have had serious negative effects on Montana's once thriving endemic salmonid populations of Yellowstone Cutthroat (*Oncorhynchus clarkii bouvieri*), Westslope Cutthroat (*Oncorhynchus clarkii lewisi*) and Bull Trout (*Salvelinus confluentus*)(Fausch et al., 2006).

The hatchery issue could not have come at a worse time. For the first time stakeholders felt comfortable with the status of taimen conservation within their individual watershed. People began to see that with a little collaboration national projects can be funded and supported not only having a directly positive effect on the river that they invested time and money in but also the rest of the region.

Furthermore, the World Bank, in cooperation with the Kuwaiti Development Fund have proposed the construction of twenty dams in the *Selenga* watershed. Development of dams and reservoirs on the principal watercourses of the *Selenga* basin puts at risk the unique natural ecosystem of Lake Baikal, the biggest freshwater lake on earth and famous for its biodiversity and endemism. The lake's ecosystem, already suffering from the impacts of hydropower in Russia, is critically dependent on the flow regime of river *Selenga*. Besides that, sediments transported by the river form the *Selenga* river delta – an unique biological filter and nursery for aquatic life, that has been declared a Ramsar Wetland of international importance (Sutton, 2012). This only adds further complications to an already complex situation.

Opportunities

In positive news the Tributary Fund recently received a \$20,000 USD grant from the Disney Worldwide Conservation Fund (DWCF) Grants for Wildlife and Wild Places. This grant

will be used to start a national taimen conservation campaign focused primarily on the capital of *Ulaanbaatar* and additional population centers including *Murun*. This campaign will draw on existing education and awareness materials that were created during the *Onon* Pride Campaign and the SOR campaign. This social marketing campaign will consist of the distribution of taimen conservation materials and will promote these materials for use in population centers across Mongolia. The materials include comic books, posters, billboards, newspaper ads and magazines with taimen conservation as their message.

By utilizing preexisting material and collaborating on messaging we will be able to efficiently use the available money on outreach instead of spending a portion of that money on creating new material. This hopefully will rejuvenate the collaborative mentality that was evident at the beginning of the SOR project. Many view this as an opportunity to incorporate a clear and concise message adamantly opposing hatcheries into this national campaign.

Spirit of the River

Problems and Concerns

Anytime that you have a document translated into multiple languages the quality of those translations is unknown. Finding individuals who can not only sufficiently speak the desired language but also have the ability to translate a document is no easy task. As a student I was able to draw on the University of Montana Fine Arts staff for help with this. Utilizing University staff allowed for the translation into several languages at relatively low costs. The SOR brochure was written with a certain message, portraying the taimen as having a high cultural value, that I was told was difficult to translate into these additional languages. Moreover I recently contacted several outfitters and taimen fishing groups in Russia with hopes of posting electronic copies of

the brochure on their websites. I was told by one contact that the Russian translation was done poorly and that the message was unclear.

After the initial translations were completed I made sure to cross check all of the translated brochures with individuals who not only spoke the language in question but also had an understanding of taimen fishing and the message we were attempting to promote. I was never alerted to any problems with the translations during this process; I had to take the individual's word for this. The concern comes from the point that I cannot check to see the quality of the translations myself. This results in the idea that you have to relinquish control on this and rely on the quality of work that is unable to be checked for your quality. My suggestion is to double check as many times as possible but at the end of the day it is important to get the material into the hands of the target audience, obviously you want to make sure that the intended message is promoted as clearly as possible but providing the message is also very important.

Opportunities

We feel that the languages that are available (English, Mongolian, French, Russian, Czech and German) cover the majority of the anglers that are in the target audience. We are attempting to stay in front of the influx of new tourists; there have been an increasing number of Korean and Japanese anglers that are beginning to fish in the region. We are already in the process of finding individuals that can translate the brochure into these languages. This will allow us to combat the growing tide of additional anglers with a comprehensive list of languages. Depending on future needs this brochure and message will be translated into as many languages as is necessary to ensure that the desired target audience remains well informed.

This message was written to target a foreign angling population; as mentioned the message promotes taimen as having a unique cultural significance for the Mongolian people. There is an opportunity to re-write the Mongolian version to more adequately address Mongolian anglers. As the intention of this project was to target primarily foreign anglers we did not take this into consideration, it was translated so that any interested Mongolian could read the message and understand that this was directed to the foreign anglers in the region. Explicitly writing a brochure directed at Mongolian anglers will do a better job of bringing locals into the conservation message. The materials created by the *Onon* River Pride Campaign do a remarkable job targeting this audience, if an SOR re-write were to take place it would have to promote the exact message as the Pride Campaign. We want to ensure that the messaging is clear across the board with no room for misinterpretation.

Following my involvement with the *Onon* Pride Campaign there was a request to take copies of the SOR brochures to their project site on the *Onon* River. The message of the SOR campaign promotes taimen conservation in *Khovsgol aimag*; an opportunity moving forward is to design the brochure to have a national message. With the brochures now being used outside of *Khovsgol aimag* we need to take advantage of the additional target audience. Another option is to print the brochures with a site specific message. If the SOR brochure was customized for each region, the sense of ownership created will be dispersed to a larger direct target audience.

Murun Regional Airport Campaign

Problems and Concerns

Due to the fact that this kiosk is self-operational and the fact that the airport staff have shown that maintenance will not be a problem I am not concerned with general upkeep. The

kiosk can use more materials that display examples of illegal fishing equipment, better graphics and more hands on interaction. Additionally due to the fact that we are not actively handing out the information it is reliant on the angler to take the initiative and familiarize themselves with the information that has been provided. No one is forcing these anglers to take the material and learn from it. The potential does exist for anglers to blatantly disregard the information provided and practice unsustainable and illegal fishing practices. While we have not noticed this taking place the potential does exist as a result of the lack of monitoring. All of the partners in this project understand that education and awareness campaign is not going to single-handedly change all attitudes and actions towards taimen conservation. The enforcement of the taimen laws and regulations by the Government of Mongolia will have more of a direct role in changing attitudes and actions. This campaign only hopes to provide the educational material to our intended target audience.

Opportunities

The kiosk can easily be expanded to promote a more visual and interactive learning experience. Ideally we would be able to have a screen playing a taimen catch and release video that visually shows the information that is portrayed in the brochure. A more interactive experience would further enhance our ability to target as many individuals as possible. The size of the kiosk can also be increased allowing for the display of more legal and illegal equipment that is used for taimen angling. There have been talks of staffing the kiosk with an environmental inspector that will actively monitor and enforce taimen laws and regulations. Anglers are very easily recognizable in the airport and a mandatory check of all fishing tackle would limit the number of incidences of illegal fishing equipment from entering the rivers and lakes of *Khovsgol Aimag*.

Chinggis Khan International Airport Campaigns

Problems and Concerns

The *Chinggis Khan* Airport authority charges a rental space for advertisement of the taimen conservation message. This is a year contract with an opportunity to renew each June; we attempted to lock ourselves into a long term contract to ensure that we could pay reasonable fees. As prices continue to rise for almost everything in Mongolia there is the potential that costs for rental space could exceed our budgets. We are attempting to ensure that this does not occur by keeping a separate fund through the *Saruul Taal* account in order to guarantee that contracts can and will be paid for future work. There has been a commitment by all stakeholders to ensure that this campaign will continue. The city of *Ulaanbaatar* just broke ground for a new international airport with plans for completion in 2015. This creates an air of uncertainty in our ability to ensure we can still promote our conservation message.

Opportunities

The new airport can provide this project with an opportunity to increase our visibility promoting taimen conservation. We view this as a chance to take this time and discuss among stakeholders the plans moving forward. A large and interactive kiosk can be incorporated into this new airport if funds can be raised and a design can be determined. As the completion of the new airport is still far in the future we have ample time to guarantee that we make the largest positive influence for future taimen conservation work.

A permanent expansion of the conservation message to domestic and international inflight magazines is a strong possibility moving forward. Drawing off the work of Fish Mongolia we feel that we can promote taimen conservation through advertisements and articles

in key inflight magazines. This proved to be highly successful and we feel that an increase into all international and domestic carriers will be a cost effective way to promote our message. This concept has been actively discussed as part of the national campaign that is in process design utilizing TTF's Disney Grant.

Social Marketing Campaign Khovsgol Aimag and Provincial Capital Murun

Problems and Concerns

After the success of the 2011 meeting there was a lot of optimism moving forward in *Murun* regarding local leadership to grow the taimen conservation message locally. However it became clear early on that organization and effort by the *Khovsgol aimag* fishing club were not emerging. With my absence from the country and the loss of *Jangar Battahu*, head Mongolian guide for Fish Mongolia, to the *Oyu Tolgi* mining company as well as *Baterdene Bayar*, a local taimen advocate, the progress that had been made ended. It has become clear through direct observations and our personal dealings with former employees in the tourism industry that we can no longer compete with mining companies for salaries. With Mongolia's push for resource extraction, jobs in the mining sector will continue to outcompete other sectors as a result of the higher wages. The mining sector will be in direct competition for educated and motivated Mongolians, a direct problem lies in the ability for the tourism industry to continue to operate in a seasonal manner. Most tourism employees are out of work during the cold harsh winters when tourism number dip drastically. The mining sector employs staff year round with much higher wages.

This example goes to show how important a charismatic local leader is to the success of a community based conservation message. The success of the *Onon* Pride Campaign can largely

be attributed to the role the *Gankhuyag Balbar* played as a leader. *Gaana* is an extremely efficient leader and is well known along the *Onon* River. He has a unique ability to organize and promote taimen conservation to a large audience. During the summer of 2012 I accompanied *Gaana* on a 12 day work trip through the *Onon* watershed. It was very evident when we entered into any of the six communities in which this campaign was operating to see the relationships that *Gaana* has built over the years. His ability to communicate and manage the issues and threats along the *Onon* River played a significant role in the success of this project.

Additionally much of the success from the *Onon* River Pride Campaign has come from its geographic location to the communities directly involved. The *Onon* River flows directly through the heart of the communities that are intimately involved in the conservation project. This has allowed the stakeholders involved to directly draw on members of the community. Because the *Onon* River plays such a central role in the lives of the community members it has resulted in the ability to recruit membership for the fishing clubs and other conservation purposes. Often the membership is comprised of local law enforcement, *soum* level environmental inspectors, government officials and other influential members of the local communities. As stated these fishing clubs play an important role in the monitoring and promotion of taimen conservation practices. With the *Onon* River Pride Campaign operating on over 200 miles of river; and a relatively large population to draw off it has resulted in a successful example of community based conservation. The *Onon* River is the only river in Mongolia that has these characteristics; a relatively large population living directly along the banks of the river resulting in high levels of community involvement and an active taimen outfitter which has resulted in the success of this project, defined by the change in attitudes of

local residents' relationship with taimen and the *Onon* River. This focus on local staff and providing local benefits reinforces conservation incentives.

The rivers of *Khovsgol aimag* including the *Delger Murun*, do not share the similar characteristics of the *Onon* River. Communities are often located large distances from the rivers; this makes it much harder to draw on local influential community members. More often than not the only Mongolians who live directly next to these rivers are semi-nomadic herdsman. The herdsman do not have a continual presence along the river as they migrate between spring, summer, fall and winter camps; the latter situated on the rivers for access to water during the winter months. A love of fishing is what the members of the *Onon* Fishing Clubs coalesce around, and the local populations who live along many of the rivers of *Khovsgol* do not share this common bond. The relative isolation of the rivers of *Khovsgol* does not translate into close community involvement or a desire to conserve and protect the taimen of this region.

Opportunities

The opportunity does exist in *Khovsgol aimag* to find individuals with the leadership skills and qualities to run a successful community based campaign. Although it has become increasingly difficult to find individuals with those qualities before the large mining companies do, the opportunities are still present. The mining companies are providing high paying jobs that the conservation and tourism community can no longer compete with. This has led to a migration of qualified and strong leaders to the South Gobi to work in Mongolia's booming mining sector. Successful projects such as the ASP that have operated in *Khovsgol aimag* have begun to show the accomplishments that local leadership can have with community based conservation projects.

The main focus for the ASP project has been to work with herder community groups throughout the Altai Sayan Eco-region. This was to be conducted through three avenues; community formation and registration, conservation, and alternative livelihoods. At the end of the ASP there were 80 herder groups that had formed with 64 of those groups having been officially registered with community certificates and conservation contracts established with the local *Soum* government. The 80 herder community groups all participated in pasture management with 1,282 families protecting 536,311 ha of pasture in the project area. Community groups have also formed management plans for Argali sheep, snow leopard, and taimen. Community trust funds have been created as well as micro financing opportunities that can be utilized by community members. (Edwards, Eldev-Ochir 2011). At the core, the ASP has provided the confidence and ability for local grassroots organizations to address these environmental concerns.

While the Delger Murun flows through the town of Murun it is over 100 miles downstream from where Fish Mongolia operates its outfitting camps. That coupled with the fact that an increasing number of employees hired by taimen outfitters live in the town of Murun have the potential to result in a growing number of conservation minded individuals that can coalesce and increase community support for taimen in the region. A critical point in this is the need to foster a conservation mentality in all of the outfitters operating in this region. If certain outfitters continue their illegal and harmful practices, in turn passing these activities onto employees that live in the region an uphill battle will continue to exist. It seems plausible that as the shift to more sustainable fishing practices increases it will draw all outfitters into this conservation mentality.

The fact that the population centers in *Khovsgol aimag* tend to have limited access to the rivers with taimen populations; makes it important to generate the conservation mentality in the population centers with hopes that it will diffuse to the actors participating in illegal taimen fishing. Once again as a direct result of the high levels of inaccessibility and lack of enforcement it is imperative to generate a conservation mentality that will result in conservation practices being implemented across the board.

As mentioned, *Khovsgol aimag* has an ever increasing conservation community operating inside the administrative region as is evident with the successful implementation of the mining restrictions above the 50° N. Additionally as a result of the ASP and the work along the *Eg/Uur* watersheds local community members have taken the initiative and formed community groups dealing with herding, forestry, and wildlife management. The community groups have formed as a way to actively combat the rural poverty that plagues the region.

Mark Recapture Tagging Program Delger Murun River

Problems and Concerns

As guides we are responsible for the majority of the tagging that takes place on the river. We can handle these large fish and tag them, causing a minimal amount of stress and harm. However in the 78 fish tagged we have still witnessed stress and harm to these fish. Additionally the tags that we use, although state of the art, are only recognized with the use of a hand held receiver that picks up the radio frequency for that fish. My problem with this tagging approach is that not everyone can tell if the fish is tagged. I have handled hundreds of taimen while guiding and fishing, during this time I have never seen a fish empty its stomach contents. Since we began tagging in 2011 I have seen five fish empty their stomach contents during the tagging

process. My assumption is that this is in direct response to the stress caused by increased handling for tagging purposes.

There have been talks of putting a ten-year moratorium on taimen angling in *Khovsgol Aimag*. Additionally there has been some question on if Fish Mongolia will continue to operate as an outfitter. In light of this uncertainty, it seems that any potential benefit to the species is not worth the stress caused by tagging. In order to get a population estimate you need a certain number of re-catches in order to correctly estimate the number of fish in the river. To date we have yet had a re-catch. If Fish Mongolia no longer operates a camp on this river, all of the tagging work and potentially fatal stress inflicted on fish will have been for nothing.

The fact of the matter is that I never was in favor of tagging in the first place. A private company that was mostly interested in biological science research agreed to fund certain portions of this project. At the time, I did not feel as though I was in a position to turn down a substantial funding opportunity. Looking back, I am not sure if I would have accepted the funds for this portion of the project and this was an important lesson to have learned. Funding for conservation projects is difficult to acquire, and refusing funding is even more challenging. Oftentimes individuals and organizations will agree to a project that may not be fully developed in hopes of increasing the funding stream. In the long run it is best to stand firm with the project design that was originally detailed and allow the funder to either support the original project or seek funding elsewhere.

Although Fish Mongolia is no longer the only outfitter operating trips on the *Delger Murun* River, we are the only ones who can tell if these fish have been tagged, and this is problematic. For example in 2011 I was guiding a 20-day expedition trip on the *Uur* River. The

Uur River is where Sweetwater operates their science camp and nearly 150 river miles upstream is an area in which we hold permits to guide. During the trip we caught a large taimen that had a green Floy tag coming out of its back. A Floy tag is applied to adult migratory species for the purposes of long-term migration studies. This tag is a modified dart tag in which a nylon T-bar replaces the harpoon like head of the dart tag. These tags are exactly like tags used to attach prices to clothing. The tags are inserted with a gun, which can be loaded with just one or an entire clip of anchor tags, enabling the quick and easy tagging of an individual. Like dart tags it is important that anchor tags penetrate deep enough into the fish that the T-bar interlocks with the skeleton (Arizona Game and Fish Department, 2012). This fish was one of the first fish that the science camp had tagged in 2004. This fish had migrated nearly 150 miles upstream and grown to a large healthy specimen. If that fish had an internal tag we would not have known that it had previously been tagged.

While the chance for fatal damage to be inflicted on the fish during tagging with Floy tags is much lower than PIT tags they are not without their own set of problems. Because these tags are so visible there have been locals along the rivers (*Onon, Eg/Uur*) that upon re-catching these tagged fish, were unhappy about the perceived harm caused to the fish. Floy tags can often become infected leaving large abrasions in the tagged area; many local residents have voiced concerns over this. Better outreach and explanation of the reasons behind this work is needed in order to justify it to the local residents and Mongolian nationals.

As a conservationist I am more interested in preserving the species through education and awareness, stricter enforcement and empowering local stakeholders. I understand the need for hard biological data, yet I feel as though the tagging program was not developed in a manner to provide long term benefit to the population on the *Delger Murun*. Given large and growing

threats (mining, meat fishing, etc.), habitat and water quality degradation, and the inability of the state to enforce regulations, it is arguable whether knowledge of exact fish numbers will make any real difference on the ground.

Opportunities

Without a doubt an increase in hard biological data is absolutely critical for the preservation of this species, as informed management decisions require comprehensive population estimates. Any activities that fill data gaps regarding taimen populations in Mongolia are a positive. The tagging work that is taking place on the *Delger Murun, Eg/Uur and Onon* Rivers has effectively established a tagging protocol as well as training guides for others to participate in more consistent tagging programs in the future. Determining program goals and desired outcomes is essential before a tagging program is initiated.

Certain tagging techniques that allow fish to be tracked give biologists and anglers a better understanding of movement and migration patterns. Other mark and recapture methods provide population estimates, fish growth, and estimates of fish and natural mortality. When marking fish it is important for a biologist/conservationist to think about the reason for marking, for instance is it important to identify an individual fish or a group of fish? Will the mark affect the fish's behavior or increase mortality? What are the chances that the tag will be lost or misidentified?

These questions need careful consideration before stress and potential mortality is inflicted on the fish. This is especially crucial for species like taimen that naturally exist in low population numbers and have slow growth rates. If a large (40+ inch/ 20+ years old) taimen is killed during the tagging process it could potentially take decades for another fish to fill its role

in the ecosystem. In these instances a clearly stated goal or desired outcome is the only justification for potential damage inflicted on these fish. In an effort to reduce stress and harm Fish Mongolia, Sweetwater Travel and Mongolia River Outfitters have been participating in a photo identification tagging program. Dr. Olaf Jensen, professor at Rutgers University Institute of Marine and Coastal Sciences and founding member of the original taimen science camp in the *Eg/Uur* watershed, has identified taimen by their unique facial markings. This method does not allow for instant recognition of a tagged specimen but fish can be recognized through a database of taimen pictures.

Once there is sufficient data collected on several rivers, true progress can be made determining certain management decisions. The rivers that are utilized by the three outfitters discussed are vastly different. In personal observations these rivers, situated at different elevations in vastly different ecosystems, experience different spawning dates, reactions to weather patterns, seasonal flow patterns etc. Currently the same management plans (fishing seasons, license quotas, etc.) are used for all rivers in Mongolia. Enriching the current biological datasets will allow decision makers to tailor management plans to individual regions and rivers acknowledging the unique characteristics of each. Once again enforcement of these potential rules and regulations will need to increase to ensure long-term protection.

Lessons Learned

Completing this project has been one large learning experience for me as well as the stakeholders involved. The success and completion of this project can be attributed to our ability to draw on numerous technical, educational and financial resources. My ability to work with stakeholders that are professional and respected within the industry proved to be a valuable

component. Incorporating these organizations into the development of this project, encouraging them to play an active role and learning from the previous work that had already been accomplished laid the groundwork for this project.

One key aspect of project management was adaptability. When dealing with a large number of stakeholders taking advantage of opportunities as they arise is imperative. Locking yourself into the project design may result in missed opportunities that may otherwise benefit the project as a whole. This project began with a specific area of operation, but as the project progressed there was an opportunity to expand our conservation message to additional areas of the country. Such prospects should be embraced, even if they do not necessarily follow the original plan. While the outcomes are often unknown they can be highly beneficial.

Be prepared to step back and let organizations and individuals operate within their desired framework. Attempting to coordinate a project in a foreign country can be frustrating and should be taken into consideration as the project progresses. Mongolians typically take large blocks of time off during their national festival of *Nadaam* in July and August. This was the time that I had available to work on this project between guide seasons, which proved difficult for organizing meetings with government officials and other critical Mongolian stakeholders. Take the time to learn the best time to accomplish the work at hand. Make yourself available during these times and stay persistent when needed.

I was fortunate in my ability to draw from a vast network of Mongolian nationals to help me through this project. My years of previous work allowed me to form relationships with individuals that could provide assistance every step of the way. When possible take time to form relationships. These types of projects operate more fluidly when you are able to utilize

individuals that not only have a desire to see the project completed but at a level that meets the expectations of the project manager.

The most important lesson that I can take away from this project is acknowledging your presence in a foreign country and respecting that culture while conducting work. If you approach these projects with the idea that your concepts should be more influential than local homegrown initiatives, problems will immediately begin to take shape. Designing these projects with that model in mind is critical. All messaging should speak with a local voice; visual examples should portray locals actively participating; and acknowledgements of success and support should be centered on local organizations and individuals. Working behind the scenes to ensure the effective implementation of the project may be necessary and the success of the project should stand above any desire for personal credit.

The international anglers hosting operations on these three rivers have shown that models of high-end, low-impact fly fishing can help lead the conservation charge. These models succeed when they work to build partnerships with the local communities capable of generating incentives for conservation. Incentives are not just monetary, especially with the limited profit margins available in Mongolia. Incentives also come in the form of diversification of economies, protection of valuable ecosystems services such as healthy riparian systems, and pride of place from understanding that one's community harbors the world's most unique fisheries. If this model is going to succeed in the future – with mounting pressures from Mongolia's changing culture and economic climate – there must be greater and broader understanding of the importance of protecting habitat and limiting fishing pressure. The models that have been generated successfully on these three rivers should be expanded upon and applied to other river systems in the country.

Conclusion

Taimen conservation throughout its native habitat range has and will continue to be a difficult task. Economic growth, modernization, and globalization pressures are accelerating around the world. There is no place where this is more evident than in Mongolia. If managed correctly with \$1.3 trillion in untapped minerals beneath its soil Mongolia has a very strong economic future (Beech, 2012). How the country chooses to manage this future will have a direct impact on taimen conservation. Mongolia must figure out how to avoid the resource curse. The substantial increase in revenue generated by the current mining boom has the potential to address many of the concerns of rural populations in Mongolia.

If the money generated by the mining boom is used to promote not only social issues but environmental issues as well, then taimen populations may remain stable and even return to healthy numbers in some areas. If the mining revenue is squandered and substantial efforts are not made to address the numerous social and environmental challenges facing Mongolia, then taimen and other large charismatic mega-fauna populations will continue to decrease and may possibly confront the threat of extinction. Until the government of Mongolia can implement a thorough and successful enforcement campaign targeting the egregious and highly visible disregard of taimen laws and regulations as determined by the MNET, taimen numbers will continue to decrease across their entire native range in Mongolia.

If substantial steps are taken towards taimen conservation, then resolving the enforcement issue must absolutely become a priority for all stakeholders involved. Currently education and awareness is an attempt to fill the gap created by the lack of enforcement. Our hope is that education will provide a buffer that allows the government of Mongolia to develop a significant enforcement plan that implements the laws that the education campaign is promoting. Education

and enforcement should complement one another even though currently the education and awareness campaign is buoying the lack of enforcement.

Working collaboratively on this project has directly benefited taimen conservation now and will hopefully continue into the future. Collaboration has built lines of communication that were previously non-existent, incorporating new stakeholders into the work and generating opportunities that promote taimen conservation moving forward. This project brought individuals and organizations to the table that had no prior interaction and created partnerships that will continue to benefit native fisheries conservation in Mongolia. The dialogue born out of this work allows stakeholders to have increased and open conversations on the direct threats faced by taimen. As these threats increase in severity and frequency, maintaining these lines of communication will be imperative to combat the issues. Managing the differing interests and ideas of this collaborative group was at times difficult but by giving each entity the ability to voice their opinions and concerns, forward mobility of the project was sustained.

The hatchery issue is another that must be addressed before we can unify once again and tackle other looming issues in Mongolia. Hatcheries have the potential to divide what is an evolving, yet strong coalition of conservationists, outfitters, NGOs, fisheries biologists and governmental personnel. If the collaboration of stakeholders allows this to take place then we will lose the credibility that has been earned and progress achieved over the last several years. The public perception of our ability to address future concerns hinges on whether we can agree on a position regarding this issue. The outcome of this decision or lack thereof will set a precedent for future work individually or collaboratively.

Not everything is perfect with taimen conservation or between the stakeholders that actively participate. Relationships among outfitters will always be competitive; at the end of the

day we are all vying for a limited number of clients, promoting our best attributes and cautiously navigating the bureaucracy that we face operating in Mongolia. Clouds of suspicion will continually hang over each outfitter's operation. The perception that we do not all play by the same rules will continue to hinder collaborative involvement in taimen conservation. Until the level of enforcement is such that monitoring of outfitter business practices (license numbers, permitting, government contracts) is a common practice then those clouds of suspicion will continue to exist.

The rampant and ongoing mining exploration does not lend itself to a fundamental shift in Mongolia's economy. Mining is going to play the dominant role in Mongolia's economy for decades, and as exploration continues more and more vital taimen watersheds will be threatened. Standing against these mining companies will be an uphill battle requiring a strong and unified voice. With the fracture in unity as a result of the hatchery issue our voice is not as strong as it once was.

Measuring the success of this project is difficult at best. We are attempting to provide educational materials to a target audience with the choice to learn and modify their actions or disregard the information and continue to break the rules and regulations as determined by the Government of Mongolia. Determining if this strategy changed behavior of foreign and domestic anglers while providing the Government of Mongolia the opportunity to increase enforcement of existing rules and regulations may take years. One measure of this project's success is its incorporation into a larger national campaign as evident from the grant provided by the Disney Worldwide Conservation Fund. The continuation of funding for this work is another indication of its effectiveness. For reasons described in this paper this project did not incorporate surveys or direct interviews; therefore, attempting to extract empirical data that tracks changes in

attitudes is not possible. Because I have witnessed anglers voluntarily taking the information provided, I feel that continued access to education materials must be available until enforcement is proven to avert anglers from breaking taimen laws.

Setting parameters that can be measured for success is an important component of conservation projects; as shown in this paper some projects do not explicitly incorporate those parameters. That is not to say that success cannot be determined. Collaborative conservation success can be measured by organizational parameters such as improved relations and trust among stakeholders, increased communications and better forms of decision-making. One key component of this project that can be viewed as a measurement of success was the emphasis placed on action over continued debate and study of the issues faced (Kenney, 2006)

It is important for all foreign stakeholders to understand that they are operating in another country. Mongolian officials have made it clear that they will proceed with management decisions related to taimen conservation with or without our inputs and recommendations. This is a fact that we have to work around, even when these management plans may include components with potentially negative consequences. Through the wide array of conservation programs implemented over the years, relationships have been formed and a network of individuals and organizations that can easily be called on to provide information and recommendations for current and future management plans exists. While at times the network may not agree at all levels, we have a responsibility to participate in management plans. Attempting to reach consensus on the introduction of hatcheries will either move us forward as a unified group or splinter us into fractions of what we could be when acting together.

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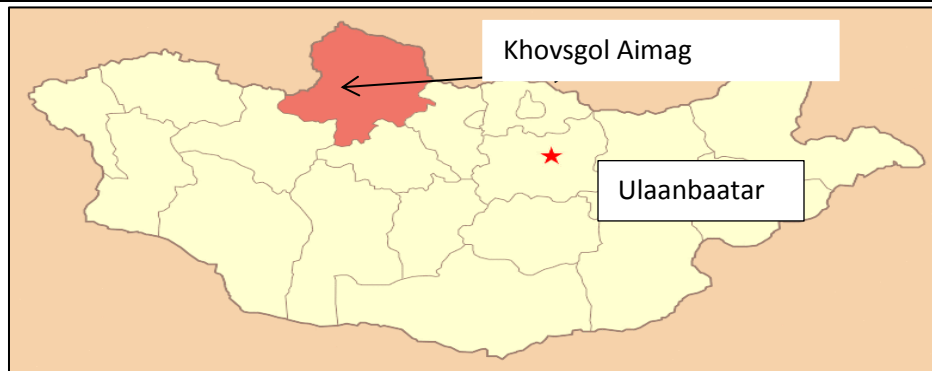
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Appendix A: Maps of Mongolia and Khovsgol Aimag

(http://upload.wikimedia.org/wikipedia/commons/a/a1/Mongolia_Khovsgol_sum_map.png)



Appendix B: Onon River Pride Campaign Fishing Club Assessment

***Onon River Pride Campaign:
Fishing Club Assessment***

Draft Report

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***Prepared For:
WWF-Mongolia
August 2012***

General Assessment:

The Onon River Pride campaign began in 2008 with funding from the international conservation organization RARE and private tour operator Mongolian River Outfitters. This campaign has operated as a close partnership between RARE, WWF-Mongolia, local governmental organizations, and Mongolian River Outfitters/ Nomadic Journeys. The purpose of this campaign was to conserve the declining populations of taimen within the Onon River watershed by making taimen the primary species of this campaign. This collaboration established six fishing clubs along the banks of the Onon River. This unique approach included local fisherman who were known in the community for their knowledge of the river and their ability to target and kill taimen. Working with these individuals a change in attitude began to emerge. These anglers who were once such a threat to taimen populations along the river began to adopt a strict conservation attitude. These anglers began to form clubs in their respective soums as a result of their love of fishing and the Onon River. These groups with support from RARE, WWF-Mongolia, and Mongolian River Outfitters/ Nomadic Journeys began an aggressive education and awareness campaign emphasizing the importance of taimen as a key indicator for a healthy Onon watershed ecosystem.

The six Onon River Fishing Clubs are not homogenous in their structure and function but they are incredibly consistent with their ideas, actions, and desires for future conservation work along the Onon River. These groups range in membership levels as high as 16 for the Dadal Fishing Club to as low as 3 for the Norvolin and Bayaan-Uul Fishing Clubs. All of these groups operate some form of river monitoring from actively patrolling sections of the Onon during peak angling times to observing the river on their own fishing outings. Their interest in fishing as well as their strong desire to see the Onon restored and protected for future generations holds these fishing clubs together. These groups have fundamentally changed the attitudes of the majority of all residents and anglers living along the Onon River. This fundamental shift can be directly attributed to the social marketing campaign that was conducted by WWF-Mongolia, the RARE campaign, Mongolian River Outfitters/ Nomadic Journeys in collaboration with the six Onon River Fishing Clubs. This change in attitude has placed the taimen and the Onon River in the forefront of the image that Khentii Aimag portrays nationally and internationally.

Findings and Conclusions:

Operations

With as much success as the Onon River Pride campaign has had it is not without need for improvement. The Fishing Clubs need continued assistance until there is a mechanism in place that will allow these clubs to operate independently of outside influences both financially and

operationally. All groups expressed continued need for additional support from WWF-Mongolia for operational guidance.

- All stakeholders need to work together to push for the Fishing Clubs to become the point of contact for all domestic anglers. This will allow them to be responsible for license sales, the sales of the licenses will generate revenue that can be held in a conservation fund and used by the Fishing Club members to cover operational costs.
- It is widely known that not all of the six soums receive equal amounts of fishing pressure and therefore revenue generated from license sales would be different for each Soum fishing club. Two of the six soums (Norvolin and Bayaan-Uul) are not granted licenses by their respective Aimag governments. These two soums need additional help in securing fishing licenses for sale; fishing still occurs within these Soums but no revenue can be generated without the sale of fishing licenses.
- During interviews it was routinely stated that the number of licenses issued to each Soum for sale are too few. These licenses sell out and the fisherman continue to come and fish without permits; resulting in a loss of revenue for the Soum. The number of licenses allotted to each Soum needs to be revisited and decided by the Soum itself.
- There is an opportunity for the Fishing Clubs to unite the six individual clubs under one larger conservation organization. The money generated from all license sales would be spread to each Fishing Club as per requested by a yearly budget. This would allow the Fishing Club to spend money in areas that need the largest amount of patrols and enforcement regardless of the financial situation of the individual Fishing Clubs.

Enforcement

Without a question all six Fishing Clubs desperately seek recognition from Soum and Aimag governments; this recognition will give these fishing clubs more of an authoritative role when encountering domestic anglers along the river. As of now they feel that they are not recognized as a role of authority when addressing domestic anglers. This has resulted in a continued lack of enforcement of the Taimen Laws and Regulations as decided by the Government of Mongolia. This lack of enforcement will continue to play the largest negative role in the future of taimen conservation along the Onon River. Domestic anglers may be aware of the regulations that surround taimen fishing but if there is no consequence for breaking these regulations than a continued pattern of illegal fishing will occur. This area is incredibly fortunate to have the number of conservation minded anglers living in this watershed; these conservation minded anglers need to be utilized to prohibit illegal fishing activities. During interviews a consistent theme was that domestic fishing pressure has increased along the Onon, unfortunately exact numbers are not known but all fishing club members interviewed

expressed concern over the rising numbers of anglers and their inability to officially enforce the rules.

- Providing Fishing Club members with official ID cards and additional forms of material that acknowledge their role in Fishing Club activities and taimen conservation along the Onon.
- It is understood that Fishing Club members will not be granted authority to actually enforce laws; however Fishing Club members need increased access to government officials responsible for legally enforcing Mongolia's Taimen Laws and Regulations (Inspectors, Park Rangers, Police)
- April-May and October-November appear to be when the largest number of domestic anglers are fishing in the Onon watershed. It is this time that increased patrols need to be carried out and enforcement needs to be strictly followed. Illegal angling is taking place, whether it is something small such as fishing without a license or something much larger like killing taimen. If laws and regulations are being broken then penalties and fines need to be enforced.
- Batshireet, Binder and Dadal have highly active Fishing Clubs with large memberships; these groups are able to better patrol their respective areas. The remaining three groups (Norvolin, Bayan Adrada, Bayaan-Uul) do not have this ability, and there was concern expressed over lack of patrolling in these remote areas with low Fishing Club membership. Creating one large Fishing Club or else allowing neighboring Fishing Clubs to patrol areas outside of their Soum will increase the amount of patrolling that is taking place in some of the remote sections that get high levels of angling.

Non-profit River Stewardship

Every Fishing Club member interviewed expressed their desire to keep the Fishing Clubs operating as a non-profit river stewardship group. This concept was unwavering among all of the interviewed anglers and when asked if any opposed this we were assured that all members agree to this concept. Members continually expressed the concept that they are all members of these groups because of their love of fishing and the Onon watershed. Members seemed to realize that the strong conservation attitude would be lost if money became the focal point for these groups. Members did mention their desire to create economic opportunities through guiding and entrepreneurial endeavors through the fishing club houses that are being built. There is an opportunity for these club houses to act as tackle stores selling single barbless hooked lures, landing nets, fishing equipment, etc.

- Economic activities can be promoted through these fishing clubs. WWF-Mongolia with their knowledge on rural poverty reduction can play a large role in this.

- Mongolian River Outfitters/Nomadic Journeys can provide assistance with establishing guide training and any additional support that may be needed to create economically viable guiding opportunities.

Hatcheries

The introduction of hatcheries to the Onon watershed is an issue that needs immediate attention and clarification by all members of the Onon River Pride campaign. A general lack of understanding is clear among most members of the fishing clubs as well as Soum government officials. People equate hatcheries with taimen conservation, their idea is that hatcheries increase the number of taimen therefore hatcheries are good for taimen conservation. When hatcheries are explained to these groups overwhelming majorities changes their mind and understands the negative effects that hatcheries will have to the Onon watershed. It is absolutely crucial for all stakeholders involved to raise awareness and create educational material that can be distributed to fishing club members, government officials, members of the Onon River Basin Council, and the residence along the river. From our interviews it is clear to see that people are simply unaware of what a hatchery is and the negative consequences of introducing hatcheries to this watershed. Staying on top of this issue will generate support for a clear and concise anti-hatchery stance along this river. Reports state that a hatchery is in the planning stages for Batshireet Soum, this issue needs to be addressed immediately. The Fishing Clubs can play a crucial role in the opposition of hatcheries. It is clear that the Fishing Clubs have had great influence in changing attitudes of taimen in this area; people listen to and respect what the Fishing Club members say about taimen conservation. These club members need to take the lead on this anti-hatchery stance. If this issue is not addressed immediately there is a strong probability that hatcheries will be implemented in the Onon River watershed.

- All stakeholders need to work together to create material that can be distributed effectively and easily to residents of the Onon watershed. This information needs to be clear and concise and explain the issues surrounding taimen hatcheries. This work is of the utmost importance and is critical for preservation of a wild Onon River.
- The Fishing Clubs need to work together to be the strongest voice of opposition to taimen hatcheries. A unified message of opposition by a coalition of Fishing Clubs will provide a clear message and will stand strong against further promotion of taimen hatcheries in the area.

Appendix C: “Spirit of the River” brochures in English, Mongolian, Russian, Czech, German and French

CATCH AND RELEASE GUIDELINES

Catching a big taimen is every angler's dream. Handling a fish of this size is difficult. Please take some time to learn the proper way to handle and release a taimen.

How to release a taimen

- ✓ Keep the taimen in the river never drag it onto the bank.
- ✓ Either use a landing net or sling / or grab the taimen around the wrist of the tail (a soft glove will help you grip).
- ✓ Immediately unhook the fish, keeping the taimen in the water (always carry suitable pliers).
- ✓ Gently lift the fish out of the water, take some quick photos. Never hold the fish out of the water for more than a few seconds.
- ✓ Hold the fish facing upstream in the current and allow it some time to revive itself.
- ✓ When the fish is strong enough to swim out of your hands, release it back into the water.

Catch and release tip

Always fish with a partner, two people working together will make unhooking and releasing these fish much easier. If two people are there, the taimen will never have to be removed from the water, a picture can be taken and the fish then released.



Angler Batmuh with a beautiful fly caught taimen. Two people make handling one of these giants easier and safer for the fish.

The “Spirit of the River” taimen conservation campaign is co-ordinated by Saruul Tai Initiatives, a Mongolian NGO, and has been endorsed and supported by the following companies and organizations. For more information please visit www.taimen.mn.



Please respect the spirit of the river – handle taimen with care and return them to the river. Enjoy your fishing trip!



Spirit of the River

Protecting the Taimen and Rivers of Hovsgol



TAIMEN CATCH AND RELEASE

DID YOU KNOW...

Mongolians believe that rivers are part of the god, or spirit, of land and water. Taimen are considered as the ‘animals of the spirit’ or ‘children of the river god’, so traditionally Mongolians did not eat fish, and give great respect to rivers and taimen.

Mongolians recognize that Taimen are a symbol of their country's unique and healthy natural environment. Mongolians are very proud that their country provides one of the world's last safe havens for taimen. The Government of Mongolia is working to protect taimen while maintaining opportunities for sustainable sport fishing.

Taimen are a slow growing fish that can live up to 30 years or more and only reach sexual maturity between 5 and 7 years of age. These attributes make taimen populations incredibly sensitive to poaching and fishing related mortality.

Mongolia has several healthy taimen fisheries that benefit from the joint conservation efforts of government, local communities, NGO's, and responsible outfitters. However, many taimen populations remain threatened by both direct harvest and habitat degradation.

Scientific studies of taimen sport fisheries in Mongolia have shown that proper catch and release will not harm the fish population. However, taimen can be harmed if they are put on dry land or if anglers place their fingers into the animal's gills.



Ch. Anokuree holds a taimen she caught fly-fishing in Hovsgol Aimag. This fish was caught on a single barbless fly and released immediately back into the river unharmed.

Mongolian Law and Regulations

Taimen fishing is catch and release only. All taimen caught must be returned immediately to the river or lake unharmed.

Taimen anglers may only fish using a single, barbless hook and artificial bait. Taimen anglers may not use fish, mice, birds, worms, or any other “natural” bait.

The use of treble hooks and/or double hooks is illegal because they cause unnecessary damage and stress to the fish, sometimes resulting in death.

All international taimen anglers must hold a special fishing permit issued by the Ministry of Nature Environment and Tourism. To get these permits your fishing tour operator must have government approved contracts for the specific rivers you will fish.

The nation's best taimen fisheries, including Hovsgol Aimag, have taimen conservation plans and very active enforcement. Penalties for fishing without a permit or using illegal methods include confiscation of fishing equipment and fines.

What you can do

1. Use only single hook lures; if you have lures with treble hooks please remove the treble hooks, replace them with single hooks and pinch down the barbs.



2. Ask to see your license to make sure that you are in possession of a taimen fishing permit.



3. Never use treble hooks while fishing for taimen.



4. Never drag taimen out of the water onto the bank.
5. Never hold taimen by placing fingers into the gills.
6. Never intentionally kill a taimen; it is illegal.
7. Please follow these catch and release guidelines.

БАРИАД, ТАВИХ ЗААВАР

Бусдаасаа том, аварга тул загас барих нь загасчдын мөрөөдөл юм. Том хэмжээтэй загас барьсны дараа гаргаж ирэх нь амаргүй байдаг учир доорх зөвлөгөөнд анхаарлаа хандуулна уу.

Тул загасыг уснаас зов гаргах

- ✓ Тул загасыг үргэлж усанд нь ойр байлга. Эргэргүү гаргаж огтхон ч болохгүй.
- ✓ Загасаа ил гаргаж харуулахдаа тор эсвэл дамнуурга ашиглах, сүүлийг нь бугуйлдан барих хэрэгтэй. (зөөлөн резинэн бээлий загасаа алдалгүй барихад тус болно)
- ✓ Барьсан даруйдаа загасаа уснаас гаргалгүйгээр дэгээг салгана. Ингэхийн тулд зориулалтын бахь биедээ үргэлж авч яв.
- ✓ Барьсан тул загасаа уснаас үл ялиг хөндийрүүлээд зургаа хурдан авахуулаарай. Ингэж гаргасан загасыг хэдхэн секунд л бариад буцааж усанд тавих хэрэгтэй.
- ✓ Загасаа буцааж тавихдаа голын урсгалын эсрэг харуулж, урсгалдаа дасан зохицож өөрөө сэлэх хүртэл нь барих хэрэгтэй.
- ✓ Загас хүчээ хангалттай сэлбэж гараас мултрах тэр үед нь гараа аажуухан авна.

Бариад, тавих зөвлөмж

Загасчлахдаа үргэлж хамтрагчтай байх хэрэгтэй, учир нь хоёр хүн хамтарч дэгээг сугалж, буцааж тавих нь илүү хялбар байна. Хоёр хүн байгаа үед загасаа уснаас хөндийрүүлэх онцын шаардлагагүй бөгөөд зураг авхуулаад буцааж тавихад дөхөмтэй.



Загасчлахдаа хоёр хүн тул загас барьсан нь Хоёр хүн ил дэгээг нэмж бариад буцааж тавих нь илүү хялбар боловч зөвлөмж юм.

"Луст Мөрөн" тул загас хамгаалах кампанит ажил нь "Саруул тал санаачлага" ТББ, мөн доорхи компани, байгууллагуудын дэмжлэгээр өрнөж байгаа юм. Дэлгэрэнгүй мэдээллийг www.taimen.mn сайтаас үзнэ үү.



Гол мөрний лус савдгыг хүндэлцгээе!
Тул загасыг гэмтээлгүй барьж, гол мөрөнд нь үргэлж буцааж тавьж байя!
Та сайхан загасчлаарай!



ЛУСТ МӨРӨН

Хөвсгөл аймагт тул загас болон гол мөрөн хайгуулах ажил ид өрнөж байна.



ТУЛ ЗАГАС БАРИАД БУЦААЖ ТАВИХ
ЗӨВЛӨГӨӨ

ТА ҮҮНИЙГ МЭДЭХ ҮҮ ...

Монголчууд гол мөрнийг бурханы нэг хэсэг буюу газар дэлхийн лус савдаг гэж үздэг. Мөн тул загасыг "лусын амьтан", "лусын хүүхдүүд" хэмээн дээдэн, амийг нь тасалж, хүнсэнд хэрэглэхийг цээрлэдэг байжээ. Энэ л уламжлалаар гол мөрөн, тул загасыг өнөө хэр хүндэтгэсээр ирсэн юм.

Монголчууд тул загасыг Монгол орны давтагдашгүй унаган байгаль болон ховор ан амьтдын бэлэг тэмдэг гэж үздэг. Үүнээс гадна дэлхий дээр тул загас аюулгүй амьдрах цорын ганц орчинг улс орондоо бүрдүүлж байгаагаараа бахархдаг юм. Монголын Засгийн газар тул загасыг хамгаалахын зэрэгцээ загасчлах спортыг тогтвортой хөгжүүлэхээр дорвитой ажил өрнүүлж байна.

Тул загас нь 30 ба түүнээс дээш жил амьдардаг, үржижээ маш удаан бөгөөд 5-7 настайгаасаа л үржилд орж эхэлдэг байна. Энэ онцлог нь тул загасыг хууль бус ангуучлалд өртөх эрсдэлийг нэмэгдүүлж, тоо толгой нь цөөрөхөд нөлөөлж байна.

Гэхдээ Засгийн газар, ТББ, орон нутгийн иргэд, хариуцлагатай аялагч нарын байгаль хамгаалах хамтарсан ажлын үр дүнд тул загасны нөөц хангалттай хэмжээнд хадгалагдсаар байгаа. Хэдий ийм боловч тул загасны амьдрах орчинг эвдэх, барьсан загасаа буцааж усанд тавихгүй байх зэрэг нь цаашдаа энэ ховор зүйл амьтныг мөхөх аюулд ч хүргэж болзошгүй юм.

Тулг гэмтээлгүй бариад буцааж тавих хэлбэрээр Монголд засагчлах спортыг хөгжүүлэх нь энэ амьтны тоо толгой, үржлийн бүтцэд нөлөөлөхгүй болохыг судлаачид тогтоожээ. Харин загасчид тул барихдаа загалмайд нь гараа хийх ч юм уу, загасаа хуурай газар тавилб гэмтэнээ гэдгийг санахад илүүдэхгүй юм.



4. Аваргууныг Хөвсгөл аймагт барьсан тул загас энэ загасны нэг дэгээг сэртэнгүй хиймэл өвчөөр барьсан бөгөөд тэр дэгээг нь эмт хэлгүйгээр буцааж тавьсан.

Монгол улсын хууль дүрэм

Тул загасыг зөвхөн зөвшөөрөгдсөн уурга хэрэгслээр барина. Барьсан бүх загасаа гэмтээлгүй тэр дор нь нуур цөөрөм, гол мөрөнд нь эргүүлэн тавих ёстой. Тул загас барихдаа зөвхөн нэг салаа сэртэнгүй дэгээ, хиймэл өвчөөнийг ашиглах шаардлагатай. Загасчид өөр бусад загас, хулгана, шувуу, хорхой зэрэг байгалийн өгөөш хэрэглэж болохгүй.

Гурав болон хоёр салаа сэртэнтэй дэгээ хэрэглэх нь хуульд нийцэхгүй бөгөөд энэ нь загасыг гэмтээж, зарим тохиолдолд хөнөөх шалтгаан болдог.

Тул загас барихаар зорьж ирсэн гадаадын загасчид БОАЖЯ-наас тусгай зөвшөөрөл авах ёстой. Уг зөвшөөрлийг авахын тулд таныг зуучлан аялуулж буй тур оператор компани энэ чиглэлийн үйл ажиллагаа эрхлэх гэрээгээ холбогдох газраар батлуулсан байх ёстой.

Хөвсгөл аймгийн ЗДТГ тул загас хамгаалах төлөвлөгөө боловсруулж, эрчимтэй хэрэгжүүлж байгаа. Зөвшөөрөлгүй болон хууль бус аргаар загас барьсан тохиолдолд торгох, загасчлах хэрэгслийг хурааж авах зэрэг захиргааны арга хэмжээ авч, хариуцлага тооцож байгаа юм.

Та юу хийж чадах вэ?

1. Зөвхөн нэг салаа сэртэнгүй дэгээ ашигла, хэрэв танд гурван салаа сэртэнтэй дэгээ байгаа бол нэг салаа болон сэртэнг нь бахиар хавчих хэрэгтэй.



2. Тул загас барих зөвшөөрөлтэй эсэхээ нягтлан шалга.



3. Тул барих гэж байгаа бол хэзээ ч гурван салаа сэртэнтэй дэгээ бүү ашигла.



4. Тул загасаа уснаас эрэг рүү хэзээ ч бүү гарга.
5. Тул загасыг барихдаа загалмай руу гараа бүү хий.
6. Тул загасыг санаатайгаар бүү хөнөөгөөрэй. Энэ нь хууль бус явдал шүү.
7. Бариад буцааж тавих зааврыг үргэлж мөрдөөрэй.

Правила рыбалки по принципу «поймал-отпустил»

Мечта каждого рыбака – поймать крупного тайменя. Обращение с рыбой такого размера требует определенных навыков. Пожалуйста, внимательно ознакомьтесь с правилами ловли и выпуска тайменя.

Как правильно отпускать тайменя

- ✓ Не вынимайте тайменя полностью из воды, никогда не вытаскивайте его на берег.
- ✓ Чтобы снять рыбу с крючка используйте сачок или возьмите рыбу у основания хвоста (мягкая перчатка способствует более надежному обхвату).
- ✓ Незамедлительно снимите рыбу с крючка, не вынимая ее из воды (всегда имейте при себе подходящие плоскогубцы).
- ✓ Осторожно выньте рыбу из воды, чтобы сделать несколько быстрых фото снимков. Никогда не вытаскивайте рыбу из воды более чем на несколько секунд.
- ✓ Опустите рыбу в воду и держите ее головой против течения, чтобы дать ей возможность восстановиться.
- ✓ Когда вы почувствуете, что рыба достаточно восстановилась, чтобы уплыть самостоятельно, отпустите ее.

Совет

Всегда рыбачьте вдвоем! Если у вас есть партнер, вам будет значительно проще снять рыбу с крючка и отпустить ее, не повредив. Также рыба вдвоем, вам не придется вытаскивать тайменя из воды, будет проще сделать желанный снимок и затем отпустить тайменя.



Партнер Хубсугул поймал тайменя на красную муру. Двум людям проще обращаться с таким гигантом и безопаснее для рыб.

Кампания по охране тайменя реализуется при поддержке неправительственной организации "Саруул талсанагчлаг", и последующих органов и компаний. Подробные информации можно получить из сайта www.taimen.ru.



Дух Реки

В Аймэке Хубсугул развертывается работа по охране реки и тайменя.



Рекомендация по ловли и пуска тайменя

Знаете ли Вы...

Монголы считают, что река является частью бога, или духа, земли и воды. Таймень считается «животным духом» или «дитем бога рек», поэтому традиционно монголы не употребляют рыбу в пищу, испытывают глубокое уважение к рекам и тайменю.

Монголы понимают, что таймень является символом уникальных и здоровых экосистем их страны и гордится тем, что в Монголии находятся одни из последних в мире ключевых мест обитания тайменя. Правительство Монголии работает над охраной тайменя, развивая при этом устойчивое спортивное рыболовство.

Таймень – медленно растущая рыба, которая может жить свыше 30 лет, и достигает половой зрелости только в возрасте от 5 до 7 лет. Эти характеристики делают популяции тайменя очень чувствительными к браконьерству и подвержены смертности в результате неправильной рыбалки.

Благодаря совместным природоохранным усилиям властей, местного населения, неправительственных организаций и ответственных организаторов спортивного рыболовства в Монголии существует несколько здоровых популяций тайменя. Тем не менее, многие популяции тайменя находятся под угрозой в следствие незаконного вылова и утраты среды обитания.

Научные исследования спортивной рыбалки тайменя в Монголии показали, что при надлежащем выполнении правил рыбалки по принципу «поймал-отпустил» спортивная рыбалка не наносит вреда популяции рыб. Тем не менее, таймень может быть травмирован, если его вытаскивают на сушу, или если рыба касается пальцами жабр при обхвате (например при фотографировании).



Ч.Амурсунг поймал тайменя, которого она выпустит в Аймэке Хубсугул. Эта рыба была поймана на одиночный крючок без бородки и незамедлительно выпущена обратно в реку невредимой.

Законы и правила в Монголии

Рыбалка на тайменя должна проводиться только по принципу «поймал – отпустил». Весь пойманный таймень должен быть незамедлительно отпущен в реку или озеро невредимым.

При рыбалке на тайменя разрешено пользоваться только одиночным крючком без бородки и искусственной приманкой. Не разрешено пользоваться рыбой, моллюсками, птицами, червями или иной «естественной» наживкой.

Использование тройных или двойных крючков является незаконным, поскольку они являются причиной дополнительного стресса для рыбы и наносят внешние травмы, которые могут привести к смерти рыбы.

Все иностранные рыбаки тайменя должны иметь специальное разрешение, выданное Министерством охраны окружающей природы и туризма. Чтобы получить эти разрешения тур оператор должен получить от правительства одобрение контрактов на ведение спортивного рыболовства на реках, где вы будете ловить рыбу.

Для лучших популяций тайменя страны, в том числе озера Хубсугул, разработаны планы по сохранению тайменя и ведется активная природоохранный деятельность. Наказания за рыбалку без разрешения или с использованием незаконных методов включают конфискацию орудий лова и штрафы.

Что вы можете сделать:

1. Использовать только одиночный крючок, если у вашей приманки тройной крючок замените данный крючок на одиночный и наложите бородку.



2. Попросить показать Вашу лицензию, чтобы убедиться, что является владельцем разрешения на ведение спортивной лова тайменя.



3. Никогда не использовать тройные крючки при ловле тайменя



4. Никогда не тащить тайменя из воды на берег.
5. Никогда, держа тайменя, не касаться пальцами жабр рыбы.
6. Никогда не убивать тайменя – это незаконно.
7. Следовать правилам спортивной рыбалки по принципу «поймал-отпустил»

JAK CHYTIT A VYPUSTIT TAJMENA

Chytout obrovského tajemna je snem každého rybáře. Tuto velkou rybu je však těžké vylovit tak, abyste ji neublížili. Věnujte pár okamžiků tomu dozvědět se, jak na to.

Jak tajemna vypustit

- ✓ Držte tajemna ve vodě, nikdy ho nevytahujte na břeh.
- ✓ Použijte buď podběrák nebo uchopte tajemna u kořene ocasní ploutve. (Aby vám ryba neklouzala, můžete použít měkkou rukavici).
- ✓ Rychle vytáhněte háček (mějte vždy po ruce vhodné kleště) a držte přitom tajemna stále ve vodě).
- ✓ Jemně vytáhněte rybu z vody a udejte pár rychlých fotek. Nikdy nevytahujte rybu z vody na více než pár vteřin.
- ✓ Držte rybu hlavou proti proudu a dejte jí čas, aby se vzpamatovala.
- ✓ Jakmile uvidíte, že je ryba dost silná a schopná uplavat vám spod rukou, pusťte ji.

Tip pro chycení a vypuštění tajemna

Vždy rybařte s někým dalším. Spolupráce dvou lidí urychlí vydávání háčku a opětovné vypuštění ryby. Když jste dva, tajemna nikdy nemusí opustit vodu, uděláte pěknou fotku a rybu zase rychle a bezpečně vypustíte zpět do řeky či jezera.



Jangar, Buzanaru a tajemna, chyceným na mušku. Když na jeho vypuštění spolupracují dva lidé, je to lehčí a pro rybu bezpečnější.

Kampaň "Duch řeky" na ochranu tajemnů je koordinována mongolskou nevládní organizací Saruul Tai Initiatives a je schválena a podporována níže uvedenými společnostmi a organizacemi. Pro více informací navštivte www.taimen.mn.



Prosím, respektujte ducha řeky - zacházejte s tajemny opatrně a vracíte je do řeky. Přijíme vás přijímat rybařské!



Duch řeky

Ochrana tajemnů a řek v Khuvsgulu



JAK CHYTIT A VYPUSTIT TAJMENA

VĚDĚLI JSTE, ŽE...

Mongolové věří, že řeky jsou součástí boha nebo také ducha pudy a vody. Tajména jsou považována za zvířata tohoto ducha nebo za "děti boha řeky", dle této tradice tedy Mongolové ryby nejdí a k tajemnům i řekám chovají velký respekt.

Mongolové považují tajemna za symboly unikátního a zdravého životního prostředí své země. Jsou také velmi hrdí, že jejich země představuje pro tajemna jedno z posledních bezpečných útočišť na světě. Vláda Mongolska se snaží tajemna chránit, zároveň ale chce i zachovat možnost udržitelného sportovního rybolovu.

Tajemna je pomalu rostoucí ryba, která může žít i více než 30 let. Pohlavní dospělosti dosáhne mezi 5. a 7. rokem života. Z těchto důvodů jsou populace tajemnů neuvěřitelně citlivé na úmrtnost způsobenou pytláctvím a lovem.

Mongolsko má několik zdravých lovišť tajemnů, které fungují díky společným snahám vlády, místních komunit, nevládních organizací a zodpovědných rybářů o jejich zachování. Nicméně mnoho populací tajemnů je i nadále ohroženo jak komerčním lovem, tak i degradací životního prostředí.

Vědecké studie zkoumající sportovní rybolov v Mongolsku ukázaly, že správné odchycení a vypuštění tajemnů rybí populaci nepoškodí. Tajména ale často umírají, pokud jsou položena na zem na břeh nebo když se rybář dotkne jejich žaber.



Ch. Anandurel drží tajemna, kterého chytila při muškaření v provincii Khuvsgul. Rybu ulovila na jednoháček bez protitrotu a okamžitě po ní přelila neznatelnou zpět do vody.

Mongolské zákony a nářez

Tajména se smí chytat, ihned poté je ale rybář musí pustit. Všichni chycení tajemna musí být puštěni do řeky nebo jezera ihned po vylovění.

Při rybaření tajemna se smí používat pouze jednoháčky bez protitrotu a umělé návnady. Ryby, myši, ptáci, červi a jiné "přírodní" návnady jsou zakázány.

Trojháčky nebo dvojháčky jsou nezákonné, protože rybu zbytečně zmrzačují a stresují, což často vede až ke jejímu úhynu.

Všichni zahraniční rybáři musejí mít speciální rybářskou povolenku vydanou mongolským ministerstvem životního prostředí a turistiky. Povolenku lze získat pouze pokud má cestovní kancelář zajišťující rybaření podepsanou smlouvu o lovu na řekách, kde chcete lovit.

Nejllepší mongolská rybářská loviště, včetně provincie Khuvsgul mají propracovaný systém ochrany přírody i ryb a postihují jeho porušování. Sankce za rybolov bez povolení, nebo pomocí nezákonných metod zahrnují konfiskaci rybářského vybavení a pokuty.

Co nářez může udělat vy

1. Použijte pouze jednoháčkové návnady, pokud máte návnady s více háčky, odstraňte je prosím, nahradte je jednoháčkovými a uštíhnete zpětné hroty.



2. Chtěte od průvodců vidět platnou licenci a ujistěte se, že vaše rybářská povolenka je platná.



3. Nikdy nepoužívejte návnady s vícero háčky.



4. Nikdy nevytahujte tajemna z vody na břeh.
5. Nikdy nedržíte tajemna tak, abyste se dotýkali žaber.
6. Nikdy tajemna záměrně nezabíjíte, je to nezákonné.
7. Dodržujte prosím pokyny pro chycení a vypuštění tajemna.

Wiederaufsetzen von Fischen

Der Traumfang eines jeden Anglers ist ein großer Taimen. Die Handhabung eines Fisches dieser Größe ist schwierig. Bitte nehmen Sie sich etwas Zeit, um sich mit der ordnungsgemäßen Handhabung und Wiederaufsetzung von Taimen vertraut zu machen.

Wiederaufsetzung von Taimen

- ✓ Halten Sie den Taimen immer im Wasser und landen Sie ihn nie am trockenen Ufer.
- ✓ Benutzen Sie immer ein Landungsnetz oder greifen Sie den Fisch am Ansatz der Schwanzflosse (weiche Handschuhe sorgen hierbei für einen guten Halt).
- ✓ Haken Sie den Taimen schnellstmöglich ab (Haben Sie sich hierfür immer eine Zange zur Hand).
- ✓ Um den Fisch zu fotografieren, heben Sie ihn vorsichtig aus dem Wasser, jedoch nie für mehr als ein paar wenige Sekunden.
- ✓ Halten Sie nun den Fisch eine Weile mit dem Kopf stromaufwärts im Wasser, bis er sich erholt hat.
- ✓ Wenn der Fisch sich erholt hat und wieder bei Kräften ist, entlassen Sie ihn wieder in den Fluss.

Tips zum Fangen und Wiederaufsetzen

Angeln Sie immer mit einem Partner. Das Abhaken und Wiederaufsetzen des Fisches wird hierdurch erleichtert. Beim Angeln mit Partner muss der Fisch nicht angelandet werden. Fotos können leichter aufgenommen, und der Fisch schneller wieder freigesetzt werden.

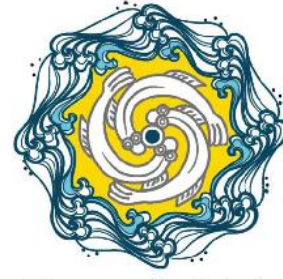


Taimen ist ein wunderbares und faszinierendes Tier. Das Angeln zu zweit erleichtert das Landen dieser riesigen Fische und macht es ungleich leichter für den Fisch.

Die 'Spirit of the River' Taimen Schutzkampagne wird koordiniert durch die Sarul Tal Initiative, eine mongolische NGO, und wird durch die folgenden Firmen und Organisationen unterstützt. Für weitere Informationen besuchen Sie bitte www.taimen.mn



Bitte respektieren Sie die Seele des Flusses – Behandeln Sie die Taimen vorsichtig und lassen Sie sie wieder frei. Viel Spaß beim Angeln!



Fluss mit Geistern

Zum Schutz des Taimen und der Flüsse des Hovsgol



TAIMEN Fangen und Freisetzen

Wussten Sie dass...

Die Mongolen glauben, dass Flüsse zusammen mit dem Land ein Teil des allumfassenden Göttlichen sind. Der Taimen wird daher

traditionell als mythisches Wesen und "Kind des Flussgottes" angesehen. Aus diesem Grund essen die Mongolen traditionell keinen Fisch und behandeln Flüsse und Fische mit großem Respekt.

Die Mongolen sehen den Taimen als nationales Symbol für die Reinheit und Einmaligkeit der mongolischen Wildnis an. Die Mongolen sind deshalb sehr stolz, dass ihr Land einen der sichersten Lebensräume für diesen einzigartigen Fisch bietet. Die Regierung der Mongolei unterstützt den Schutz des Taimen und Programme zur nachhaltigen Sportfischerei.

Taimen wachsen sehr langsam und können bis zu 30 Jahren alt werden, wobei sie erst ab dem Alter von 5-7 Jahren geschlechtsreif sind. Aus diesem Grund reagieren die Taimenbestände sehr empfindlich auf unkontrollierte Raubfischerei, welche meist erwachsene Tiere tötet.

Die Mongolei hat eine Reihe von Programmen zum nachhaltigen Fischfang implementiert, die sich auf der Kooperation von Regierung, lokalen Gemeinden, NGO's und Fischern gründen. Trotzdem sind die Taimenbestände vielerorts durch unkontrollierten Fang und die Zerstörung ihres Lebensraumes bedroht.

Wissenschaftliche Studien zur Sportfischerei in der Mongolei haben gezeigt, dass das fachgerechte Fangen und Wiederaufsetzen von Taimen die Fischbestände nicht bedroht. Die Fische werden jedoch verletzt, wenn sie angelandet oder mit den Fingern in den Kiemen hoch gehoben werden.



Ch. Anarsuren mit einem auf Fliegen gefangenen Taimen im Hovsgol Aimag. Der Fisch wurde direkt nach dem Fang unverletzt wieder in den Fluss zurückgesetzt.

Mongolische Gesetze und Verordnungen

Das Fischen von Taimen ist grundsätzlich nur zur Sportfischerei gestattet. Alle gefangenen Taimen müssen direkt nach dem Fang unverletzt wieder eingesetzt werden.

Taimen Angler dürfen nur einzelne Haken und Köder ohne Widerhaken einsetzen. Die Verwendung von Lebendködern wie Mäusen, Würmern, Vögeln, Fischen, oder anderen weichen Tieren ist verboten.

Die Verwendung von Doppel-, oder Dreifachhaken ist illegal, da sie den Fischen unnötige Verletzungen und Stress zufügt, welche oftmals zum Tod des Fisches führen können.

Alle ausländischen Angler benötigen eine spezielle Lizenz zum Angeln von Taimen, welche vom Ministerium für Umwelt und Tourismus ausgestellt wird. Um diese zu erhalten, muss der Tourveranstalter ein staatlich anerkanntes Unternehmen sein und über Lizenzen für den zu befischenden Fluss verfügen.

Die besten mongolischen Fischgebiete, einschließlich dem Hovsgol Aimag, verfügen über Pläne zum Schutz des Fischbestandes, welche sehr streng durchgesetzt werden. Die Strafen für illegales Fischen beinhalten neben Geldstrafen auch die Konfiszierung der Angelrüstungen.

Regeln zum Fangen und

1. Benutzen Sie nur Köder mit einem Haken. Falls Sie Dreifachhaken haben, ersetzen Sie sie bitte mit Einfachhaken und entfernen Sie von diesen die Widerhaken.



2. Lassen Sie sich von Ihrem Tourveranstalter Ihre Genehmigung zeigen, damit Sie sicher sind eine gültige Lizenz zu besitzen.



3. Benutzen Sie keine Köder mit Mehrfachhaken



4. Landen Sie Taimen nie am Ufer an.
5. Halten Sie Taimen nie mit den Fingern in den Kiemen.
6. Beabsichtigtes Töten von Taimen ist ILLEGAL.
7. Bitte befolgen Sie die Regeln zum Fangen und Wiedereinsetzen von Taimen.

CONSEILS DE PÊCHE

Attraper un taimen c'est le rêve de tous les pêcheurs. Il est cependant difficile de manipuler un poisson de cette taille. Veuillez donc prendre le temps de lire ces quelques recommandations.

Comment relâcher un taimen

- ✓ Le taimen doit rester dans la rivière, ne le ramenez jamais sur la rive.
- ✓ Manipulez le poisson à l'aide d'une épuisette ou d'une élingue / ou bien attrapez le poisson en pinçant la jointure de la queue (un gant en matière souple vous aidera à ne pas blesser prise).
- ✓ Délivrez le poisson immédiatement en maintenant le poisson sous l'eau (ayez toujours avec vous les pinces adéquates).
- ✓ Sortez le poisson de l'eau en le soulevant délicatement, prenez quelques photos rapidement. Ne maintenez jamais le poisson hors de l'eau plus de quelques secondes.
- ✓ Tenez le poisson dans l'eau à contre-courant afin de lui donner le temps de se reprendre.
- ✓ Lorsque le poisson a retrouvé sa vigueur et qu'il semble prêt à vous échapper, relâchez-le.

Astuce de prise avec mouche

Pêchez toujours avec un coéquipier. L'un des deux rendra la manipulation et le relâche du poisson bien plus faciles. Ainsi le taimen pourra être pris en photo et relâché sans jamais être sorti de l'eau.



Longin Oulart, à avec un autre taimen pêché à la mouche. Les deux hommes tiennent la tête ou l'un des queues plus durs et plus fins pour le poisson.

"L'esprit de la rivière" est une campagne de sauvegarde du taimen qui a été coordonnée par Saruul Tai initiatives, une ONG mongole, avec le soutien des entreprises et organisations suivantes. Pour plus d'informations, visitez www.taimen.mn.



Respectons l'esprit de la rivière :
pratiqons la pêche au taimen avec
précaution et remettons-le à la rivière.
Bonne pêche!



L'esprit de la Rivière

Protection du taimen et des rivières du Khovsgol



COMMENT PÊCHER ET RELÂCHER LE TAIMEN

LE SAVIEZ-VOUS...

Pour les Mongols, la rivière est une présence divine : celle des dieux de la terre et de l'eau, ou du moins de leur esprit. Le taimen est considéré comme étant "l'animal de l'esprit" ou "l'enfant du dieu de la rivière", donc traditionnellement les Mongols ne mangent pas de poisson, et sont très respectueux de la rivière et du taimen.

Les Mongols reconnaissent le taimen comme étant un symbole du caractère unique et sain de l'environnement naturel de leur pays. Le fait que les terres mongoles soient l'un des derniers lieux de refuge sur terre pour le taimen est une fierté. Voilà pourquoi le gouvernement mongol travaille à protéger le taimen tout en conservant la possibilité de pratiquer une pêche de loisir viable.

Le taimen est un poisson dont la croissance est lente. Il peut vivre jusqu'à 30 ans ou plus et n'atteint une maturité sexuelle qu'entre 5 et 7 ans d'âge. Ces caractéristiques font que le taimen est une espèce incroyablement sensible au braconnage et à la mortalité liée à la pêche.

Il y a en Mongolie plusieurs pêcheries qui suivent les règles de préservation de l'animal car elles bénéficient de la collaboration du gouvernement, de communautés locales, d'ONG, et d'équipementiers responsables. Cependant, le taimen reste menacé à la fois par la chasse et par la dégradation de son habitat.

Des études scientifiques menées auprès de pêcheries en Mongolie ont démontré que la prise et relâche du poisson dans les règles ne sont pas nocives pour les populations de taimen. Toutefois, les taimens peuvent être blessés s'ils sont en contact avec la terre sèche ou bien si le pêcheur introduit ses doigts dans les branchies de l'animal.



Chef Oulart tient le taimen qu'il a pêché à la mouche dans la province d'Arkhangai. Ce poisson a été attrapé à l'aide d'un hameçon simple sans grilhon et il a immédiatement été remis à la rivière, soigné et relâché.

Législation et dispositions réglementaires mongoles

La pêche du taimen est limitée à la prise et relâche du poisson. Tout taimen attrapé doit immédiatement être remis à l'eau indemne.

Les pêcheurs de taimen ne doivent utiliser ni poisson, ni souris, oiseaux, vers, ou quelconque autre appât "naturel".

L'emploi d'hameçons doubles et/ou triples est illégal parce que cela entraîne chez le poisson des lésions, ainsi que du stress, inutiles ; allant parfois jusqu'à la mort.

Tout pêcheur de nationalité étrangère doit être en possession d'un permis de pêche spécial émis par le ministère de la nature, de l'environnement et du tourisme. Pour obtenir ce permis, l'organisateur de la pêche doit avoir l'approbation du gouvernement sous forme de contrat pour les rivières où la pêche a lieu.

La mise en application des programmes de préservation du taimen dans les meilleures pêcheries du pays est très active, y compris dans le Khovsgol Aimag. Pêcher sans autorisation, ou l'emploi de méthodes illégales peut entraîner la confiscation de l'équipement de pêche ou des amendes.

Ce que vous pouvez faire

1. N'utilisez que des appâts simples; si nécessaire, veuillez remplacer vos hameçons triples par des hameçons simples et courbes les barbes.



2. Demandez à voir votre permis afin de vous assurer que vous êtes bien autorisé à pêcher le taimen.



3. N'utilisez jamais d'hameçon triple.



4. Ne ramenez jamais le taimen sur la rive.
5. Ne tenez jamais le taimen par les branchies.
6. Ne tuez jamais un taimen; c'est illégal.
7. Veuillez suivre ces conseils de pêche et relâche du taimen.

Appendix D: MOU between Fish Mongolia and the National University of Mongolia



MEMORANDUM OF UNDERSTANDING

between the

**School of Biology and Biotechnology of
NATIONAL UNIVERSITY OF MONGOLIA**

and the

FISH MONGOLIA CO., LTD

This Memorandum of Understanding ("**MoU**") is being entered into as of Month Day, 2011 by and between the School of Biology and Biotechnology of the **NATIONAL UNIVERSITY OF MONGOLIA ("NUM")**, organized and existing under the laws of Mongolia and the **FISH MONGOLIA CO.**, (each a "Party" and collectively, the "Parties").

WHEREAS Fish Mongolia is a fully licensed Mongolian fly-fishing outfitter and tour operator. Founder, Andy Parkinson.

We have agreements for fishing on two river systems in the Hövsgöl region of Northern Mongolia, where we work closely with the local communities on conservation and community initiatives. Through our eco-tourism business we are engaging local communities in conservation initiatives. By working with the nomadic herders who range along the rivers we hope to protect the Taimen and preserve these remarkable rivers in their pristine condition. **FISH MONGOLIA** is dedicated to pursuing this mission in Mongolia in collaboration with NUM;

WHEREAS, NUM is a Mongolian institution of higher education that offers training in conservation and research in natural sciences; NUM is the country's oldest and only comprehensive university and a leading center of sciences, education and culture. It was established in 1942, and throughout its history has played a significant role in the development of higher education in Mongolia. The NUM offers a broad range of bachelor, Master and PhD programs and its graduates make up one third of the country's intellectuals. It has fourteen schools in Ulaanbaatar and campuses in Zavkhan and Orkhon provinces. NUM is positioned to train the next generation of conservation practitioners, provide continuing education to professionals working in the

environmental sector and lead important research in conservation biology. NUM is dedicated to pursuing this mission in collaboration with Fish Mongolia;

WHEREAS a well trained cadre of conservation practitioners is critical to achieving conservation success in Mongolia and it is in the interest of FISH MONGOLIA and the NUM to work together to meet their overlapping goals and advance conservation in Mongolia, in line with the scientific, educational and charitable purposes of both organizations;

Now, therefore, the Parties agree as follows:

Fish Mongolia

1. Will co-operate with Department of Ecology on taimen population assesment for Delger Muron River ("tagging project").
2. Fish Mongolia, will sponsor or find donors for the tagging project, providing all necessary tagging and fieldwork equipment (including tags, scanners, rafts, tents etc), and provide transportation expenses and per diem for a Master's student to conduct fieldwork.
3. Will provide all data collected to Department of Ecology for department to analyze and publish.
4. Fish Mongolia clients and guides will provide assistance to the student in catching fish for tagging, and assisting with tagging and data collection.
5. Will teach Master's students the use of tagging equipments.
6. Fish Mongolia will not provide any personal items such as sanitary utensils, flash light, etc.
7. Fish Mongolia will provide onsite supervision of the student and will provide training in safety procedures .

Department of Ecology, School of Biology and Biotechnology of the National University of Mongolia,

1. Will find a Master's degree student to conduct Taimen tagging work with Fish Mongolia, and will be the lead supervisor for this student.
2. Will prepare methodology for the taimen population assessment.
3. Will apply for science permit to conduct this research work.
4. Will provide results of analysis to Fish Mongolia and local resource managers.
5. Will acknowledge Fish Mongolia's project sponsors and donors in any publication or published work relating to the tagging project and data analysis.

Others

1. The parties each agree to appoint a primary contact person to coordinate efforts. These two people will work closely with the tagging project and sharing information.
2. At the time of fieldwork, both parties will follow their job description and work-plan.

Amendments and Modifications

Amendments of, modifications to the terms and conditions of this MoU shall be made by formal writing agreement of both Parties.

Terms and termination

This MoU shall be in force for one year after the effective date as signed unless extended or terminated earlier by either Party, upon written notice to the other Party.

IN WITNESS WHEREOF, The aforementioned parties do hereby voluntarily attest that the above statements pertaining to intent and responsibility are agreeable and shall be officially recognized as a commitment of partnership.

Fish Mongolia Co.,Ltd

National University of Mongolia

By:_____

Name:

Title:

By:_____

Name: Dr. Nyam-Osor Batkhoo

Title: Dean of School of Biology and
Biotechnology of NUM

Date:_____

Date:_____